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DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1990

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

ONE HUNDRED FIRST CONGRESS

FIRST SESSION

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PART 5

Page

Chemical Weapons and Demilitarization 1

Army Procurement Programs:

- **Aircraft** 95
- **Weapons and Tracked Combat Vehicles** 137
- **Ammunition** 189
- **Missile and Other** 285

Air Force Procurement Programs:

- **Aircraft** 381
- **Missile and Other** 435

Marine Corps Procurement/Research and Development 517

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DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1990

WEDNESDAY, MARCH 22, 1989.

CHEMICAL WEAPONS AND DEMILITARIZATION

WITNESSES

THOMAS J. WELCH, DEPUTY ASSISTANT TO THE SECRETARY OF DEFENSE FOR ATOMIC ENERGY (CHEMICAL MATTERS)

MICHAEL W. OWEN, PRINCIPAL DEPUTY ASSISTANT SECRETARY OF THE ARMY FOR INSTALLATIONS AND LOGISTICS

BRIG. GEN. DAVID A. NYDAM, U.S. ARMY, PROGRAM MANAGER FOR CHEMICAL DEMILITARIZATION

MICHAEL PARKER, PROGRAM MANAGER FOR BINARY MUNITIONS

CAPT. LARRY D. PFITZENMAIER, U.S. NAVY, PROGRAM MANAGER FOR BIGEYE BINARY CHEMICAL WEAPONS

INTRODUCTION

Mr. MURTHA. The Committee will come to order. This afternoon the Committee considers the budget estimates for chemical warfare, to include chemical weapon production, disposal of chemical weapons, and chemical defense programs. The principal witnesses are Dr. Thomas J. Welch, Deputy Assistant to the Secretary of Defense (Chemical Matters) and Mr. Michael Owen, Principal Deputy Assistant Secretary of the Army (Installation and Logistics).

This hearing is held in closed session because of the classification of the material to be discussed.

Dr. Welch and Mr. Owen your prepared statements will be made a part of the record. You may briefly summarize them now and then we will proceed to questions.

SUMMARY STATEMENT OF DR. WELCH

Dr. WELCH. It is a pleasure to be here again and to tell you about a very important program for the DOD.

There are three areas here to talk about: defense against these weapons, destruction of our entire lethal stockpile, and the retaliatory systems we think are essential to deterrence.

Let me stick to a very short statement of what the request is. I want to start by saying what is new from last year. There are a couple of things that need to come to your attention.

First, a few months ago, we had a conference in Paris. Our Secretary of State represented the United States. The objective of the Paris conference was to review and strengthen the 1925 Geneva protocol, which prohibits use of chemical and biological weapons.

CHEMICAL WEAPONS IN THIRD WORLD NATIONS

At that conference, something of military significance, something which the committee needs to consider, took place, and that was the assertions of a number of nations that they needed chemical weapons to counterbalance nuclear weapons held by the United States and, as a couple of Arab states said, held by Israel.

In the words of the Syrian Foreign Minister, "it is unacceptable given continued Israeli occupation and the disequilibrium existing in our region to adopt sensitive concepts and methods aimed at disarmament concerning only one kind of mass destruction weapon without taking into account the need for disarmament concerning the other forms."

This is a new political position and they are saying as long as you in the West believe you have a right to keep nuclear weapons, we are going to get and keep chemical weapons.

It is independent of what you do with your binary production, independent of a lot of other things. It is if you think you have a right to have these things, we have a right to have these things.

They also asked at this time to become players in the Conference on Disarmament, the forum in which we are trying to achieve a treaty banning even possession of these weapons.

So the negotiations, which have been difficult so far, are now even more complicated by countries maintaining they are not going to sign a treaty unless at the same time we are willing to eliminate nuclear weapons.

PROLIFERATION OF WEAPONS AND MISSILES

The second thing that I would bring to your attention is the proliferation not only of chemical and biological weapons, but also ballistic missiles.

There are countries now in the Middle East with ballistic missiles and with chemical and biological agents which pose special military challenges to us and to our allies.

Here I would mention again Israel. If we have to come to the aid of an ally, if we are involved in a hostage rescue, it is no longer going to be a simple intervention issue.

There are countries over there with the potential to make more chemical weapons than the United States possesses now in its rather limited useful stockpile. ———.

The last thing I would bring to your attention is, and it is new, what the Soviets have declared and have not declared about their chemical weapon stockpile.

After we started building binaries, they, for the first time, admitted they had chemical weapons. They said they had 50,000 tons of these lethal agents. ———.

I know you are concerned very much about one of the three areas that we talked about.

[The statement of Dr. Welch follows:]

FOR THE RECORD

STATEMENT BY

DR. THOMAS J. WELCH

DEPUTY ASSISTANT TO THE SECRETARY OF DEFENSE

(CHEMICAL MATTERS)

BEFORE THE

HOUSE COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEE ON DEFENSE

MARCH 22, 1989

INTRODUCTION

I THANK YOU FOR THE OPPORTUNITY TO ADDRESS THE SUBCOMMITTEE TODAY AND TO PRESENT THE DEPARTMENT OF DEFENSE CHEMICAL WARFARE AND CHEMICAL AND BIOLOGICAL DEFENSE PROGRAMS.

THE DEPARTMENT OF DEFENSE IS HERE TODAY ASKING THE CONGRESS FOR HELP -- HELP TO PREVENT THE USE OF CHEMICAL AND BIOLOGICAL WEAPONS AGAINST THE ARMED FORCES OF THE UNITED STATES AND ITS ALLIES.

WE NEED YOUR HELP ESPECIALLY NOW BECAUSE CHEMICAL AND BIOLOGICAL WARFARE, OR CBW, IS A THREAT NOT ONLY IN EUROPE AND KOREA. BECAUSE OF UNCHECKED PROLIFERATION, WE NOW FACE A GLOBAL CBW MENACE. THE PROBLEM HAS BECOME PARTICULARLY ACUTE IN THE MIDDLE EAST.

AS WE HAVE STATED IN THE PAST, THE UNITED STATES MUST BE FULLY PREPARED TO DETER ANY PERCEPTION BY OUR ADVERSARIES THAT THEY COULD GAIN AN ADVANTAGE OVER US BY INITIATING CHEMICAL OR BIOLOGICAL WARFARE. SHOULD THAT DETERRENCE FAIL, WE MUST HAVE THE CAPABILITY TO SURVIVE THE ATTACKS, CONTINUE OPERATING EFFECTIVELY AND, MOST IMPORTANTLY, RETALIATE IN A PROPORTIONATE MANNER TO STOP CBW SWIFTLY AND SURELY. THEREFORE, DETERRENCE IS BASED ON TWO EQUALLY NECESSARY PILLARS -- A STRONG DEFENSIVE CAPABILITY AND A STRONG AND EFFECTIVE CHEMICAL RETALIATORY CAPABILITY. LACKING EITHER OF THESE PILLARS, THE UNITED STATES HAS NO CREDIBLE DETERRENT.

THE PROBLEM

OVER THE YEARS, BOTH THE CONGRESS AND THE DEPARTMENT OF DEFENSE HAVE AGREED TO THE FUNDAMENTAL PREMISE THAT

> IT IS ABHORRENT, REPREHENSIBLE AND UNACCEPTABLE THAT CHEMICAL WEAPONS EVER BE USED AGAINST THE MEN AND WOMEN OF THE ARMED FORCES OF THE UNITED STATES OR ITS ALLIES AND THAT THE UNITED STATES WILL DO ALL IT CAN TO PREVENT SUCH USE.

UNFORTUNATELY, OUR ABILITY TO ACCOMPLISH THIS IS CLEARLY BEING THREATENED.

FIRST, MORE NATIONS POSSESS CHEMICAL AND BIOLOGICAL WEAPONS TODAY THAN AT ANY OTHER TIME IN HISTORY. THE MAJORITY OF THESE NATIONS ACQUIRED THEIR CHEMICAL WEAPONS AFTER THE UNITED STATES BEGAN ITS MORATORIUM ON PRODUCTION AND TESTING IN THE LATE 1960S. MOST OF THESE COUNTRIES LIE IN REGIONS OF STRATEGIC INTEREST TO THE UNITED STATES. IN ADDITION, MANY OF THEM ARE ACQUIRING LONG RANGE DELIVERY SYSTEMS SUITABLE FOR CHEMICAL AND BIOLOGICAL WARHEADS. THE 1972 BIOLOGICAL WEAPONS CONVENTION PROHIBITS POSSESSION OF BIOLOGICAL WEAPONS, BUT WE KNOW OF AT LEAST TEN COUNTRIES WITH A BW PROGRAM. MOST OF THE TEN ARE SIGNATORIES TO THE CONVENTION. WE CONCLUDE THAT CW AND BW PROLIFERATION HAS OCCURRED AND CONTINUES. THE WORLD IS A MUCH MORE DANGEROUS PLACE BECAUSE OF IT, AND WE CANNOT PRETEND OTHERWISE.

SECOND, THE SOVIET UNION CONTINUES TO HAVE THE WORLD'S GREATEST CAPABILITY FOR CONDUCTING CHEMICAL AND BIOLOGICAL WARFARE. AFTER WE BEGAN PRODUCING BINARY CHEMICAL WEAPONS, THE SOVIETS SUDDENLY BECAME MORE FORTHCOMING IN ADDRESSING THE EXISTENCE AND SIZE OF THEIR CHEMICAL STOCKPILE. HOWEVER, WE FEEL A SUBSTANTIAL GAP EXISTS BETWEEN THE DECLARED SIZE OF THE SOVIET STOCKPILE AND ACTUAL SOVIET CAPABILITIES. WE ARE PARTICULARLY CONCERNED ABOUT NEW, UNKNOWN TYPES OF SOVIET AGENTS THEY HAVE CHOSEN NOT TO DECLARE. EVEN IN THE EVENT WE COME TO A BILATERAL CHEMICAL WEAPONS AGREEMENT WITH THE SOVIET UNION, WE STILL HAVE OTHER SERIOUS GLOBAL THREATS TO WORRY ABOUT. DISARMAMENT MUST BE GLOBAL, NOT JUST BILATERAL, AND IT MUST BE VERIFIABLE IF WE ARE TO HAVE TRUE SECURITY.

OUR THIRD PROBLEM IS THE LACK OF A CREDIBLE CHEMICAL WARFARE DETERRENT TO CHEMICAL AND BIOLOGICAL ATTACKS ON OUR FORCES AND THOSE OF OUR ALLIES. AS THE CONGRESS HAS RECOGNIZED, OUR UNITARY WEAPONS STOCKPILE IS NOT A CREDIBLE DETERRENT. WE ARE IN THE MIDDLE OF PRODUCING THE 155MM BINARY CHEMICAL ARTILLERY ROUND. WE WILL NOT BEGIN PRODUCTION OF THE BINARY BIGEYE BOMB AND THE MULTIPLE LAUNCH ROCKET SYSTEM BINARY CHEMICAL WARHEAD UNTIL 1991 AND 1992, RESPECTIVELY.

FINALLY, WHILE WE ARE MAKING GOOD PROGRESS IN OUR DEFENSIVE PROGRAMS, RELYING ON DEFENSE ONLY AS A DETERRENT IS NOT SUFFICIENT. THE DEBILITATION THAT COMES WHILE WEARING PROTECTIVE MASKS, GLOVES, OVERBOOTS AND OVERGARMENTS CUTS DEEPLY INTO AN INDIVIDUAL'S ABILITY TO PERFORM HIS OR HER MISSION. SOLDIER

PERFORMANCE AND AIR FORCE SORTIE GENERATION RATES DROP AT LEAST 50 PERCENT IN A RELATIVELY SHORT PERIOD (TWO TO FOUR HOURS) AND CONTINUE TO DETERIORATE AS TIME PASSES. THIS OFTEN MEANS OUR FORCES CANNOT EFFECTIVELY EXECUTE THEIR ASSIGNED MISSIONS WHILE OPERATING IN A CONTAMINATED ENVIRONMENT. THESE ROLES INCLUDE COMING TO THE AID OF AN ALLY, PERFORMING A HOSTAGE RESCUE, PEACE KEEPING, ETC. IMAGINE LOSING HALF YOUR COMBAT POWER WHILE THE ENEMY IS NOT EQUALLY BURDENED. WE THEREFORE NEED TO MAKE OUR POTENTIAL ADVERSARIES KNOW THAT BECAUSE OF OUR CHEMICAL RETALIATION THEY WILL LABOR UNDER THE SAME CONDITIONS IF THEY USE CW OR BW -- THEY CANNOT BE ALLOWED TO HAVE THIS ADVANTAGE.

RECENT EVENTS

SEVERAL NEW EVENTS WARRANT THE SUBCOMMITTEE'S ATTENTION.

FIRST, WE ARE CONCERNED OVER MILITARILY SIGNIFICANT POLICY DECLARATIONS BY THIRD WORLD NATIONS AT JANUARY'S PARIS CONFERENCE ON CHEMICAL WEAPONS. SOME OF THESE NATIONS STATED THAT CHEMICAL WEAPONS ARE A LEGITIMATE COUNTERBALANCE TO NUCLEAR WEAPONS AND THAT ANY CONTROL OF CHEMICAL WEAPONS MUST BE LINKED AS WELL TO NUCLEAR WEAPONS.

IN THE WORDS OF THE SYRIAN FOREIGN MINISTER, "IT IS UNACCEPTABLE, GIVEN CONTINUED ISRAELI OCCUPATION AND THE DISEQUILIBRIUM EXISTING IN OUR REGION, TO ADOPT SELECTIVE CONCEPTS AND METHODS AIMED AT DISARMAMENT CONCERNING ONLY ONE KIND OF MASS-DESTRUCTION WEAPON WITHOUT TAKING INTO ACCOUNT THE NEED OF DISARMAMENT CONCERNING OTHER FORMS" (EDWARD CODY, *WASHINGTON POST*, JANUARY 13, 1989). THE SYRIAN FOREIGN MINISTER'S IRAQI COUNTERPART TOOK A SIMILAR POSITION. THEIR POLICY SEEMS TO BE ASSOCIATED WITH ACQUISITION OF BALLISTIC MISSILES AS WELL AS CHEMICAL AGENTS. MORE THAN EVER, THE UNITED STATES NEEDS CHEMICAL RETALIATORY SYSTEMS CAPABLE OF GLOBAL DEPLOYMENT AND EMPLOYMENT IN A VARIETY OF SITUATIONS.

FURTHER, BOTH THE SYRIAN AND IRAQI FOREIGN MINISTERS SAID THEIR COUNTRIES SHOULD BE PARTICIPANTS IN THE NEGOTIATIONS DEALING WITH CHEMICAL WEAPONS ARMS CONTROL. IN THE WORDS OF THE IRAQI FOREIGN MINISTER, ". . . IRAQ, LIKE ALL SOVEREIGN STATES, WOULD NOT THINK OF SUBSCRIBING TO AN ACCORD IN WHOSE DRAFTING IT IS NOT AUTHORIZED TO PARTICIPATE" (EDWARD CODY, *WASHINGTON POST*, JANUARY 13, 1989).

SECOND, PRESIDENT BUSH HAS CLEARLY STATED HE IS IN FAVOR OF A COMPREHENSIVE, GLOBAL AND VERIFIABLE CHEMICAL WEAPONS TREATY NEGOTIATED FROM A POSITION OF STRENGTH. THE DEPARTMENT FULLY SUPPORTS THIS POLICY.

THIRD, AS EVIDENCED BY CONTINUING PROLIFERATION, CONTROL OF THE PRECURSOR COMPOUNDS NEEDED TO PRODUCE CHEMICAL WARFARE AGENTS IS EXTREMELY COMPLICATED. MANY OF THESE PRECURSORS HAVE LEGITIMATE INDUSTRIAL AND BIOMEDICAL APPLICATIONS. WE ARE STILL INVESTIGATING THE IMPACT OF PRECURSOR PROLIFERATION AND THE BEST METHODS OF CONTROL.

WE HAVE ALSO RECEIVED CONVINCING EVIDENCE OUR ADVERSARIES ARE DEVELOPING NEW AGENTS FOR WHICH WE MAY NOT HAVE ADEQUATE

DEFENSES. IF THEY THINK THESE NEW OR EXISTING AGENTS GIVE THEM A MILITARY ADVANTAGE, THEY MAY NOT HESITATE USING THEM.

ANOTHER NEW EVENT IS THE CHEMICAL WEAPONS COMPLEX OF COLONEL QADHAFI. IN FACT, OUR INTELLIGENCE INDICATES ITS PRODUCTION CAPACITY COULD ALLOW LIBYA TO PRODUCE A SIGNIFICANTLY LARGE STOCKPILE IN A FAIRLY SHORT PERIOD OF TIME. ISRAEL AND OUR OTHER ALLIES IN THE REGION ARE NOW UNDER A VERY REAL CHEMICAL THREAT. WE ARE ALSO CONCERNED BY PRESS REPORTS OF LIBYA'S ATTEMPT TO ACQUIRE AN IN-FLIGHT AERIAL REFUELING CAPABILITY TO EXTEND THE RANGE OF THEIR FIGHTER-BOMBER AIRCRAFT.

AS THE CHEMICAL WEAPONS NEGOTIATIONS CONTINUE, WE FIND OURSELVES VERY MUCH IN AGREEMENT WITH THE STATE DEPARTMENT POSITION THAT "ANY ONE-TIME INSPECTION OF A POSSIBLE CW FACILITY WOULD PROVE NOTHING. A CW PLANT CAN BE EASILY MODIFIED TO APPEAR AS A LEGITIMATE INDUSTRIAL CHEMICAL PLANT, SUCH AS A PHARMACEUTICAL OR INDUSTRIAL FACILITY. ALL TRACES OF CW PRODUCTION COULD BE ERASED FROM A PLANT ON EXTREMELY SHORT NOTICE." THE DOD HAS R&D PROGRAMS UNDER WAY TO DEVELOP TECHNOLOGIES WHICH COULD BE ADAPTED FOR SOME OF THE REQUIREMENTS OF TREATY VERIFICATION. THESE PROGRAMS ARE CLOSELY INTERTWINED WITH OUR CHEMICAL AND BIOLOGICAL AGENT DETECTION EFFORTS.

CONCLUSIONS

WHAT DO ALL OF THESE PROBLEMS AND RECENT EVENTS MEAN TO THE SECURITY OF THE UNITED STATES? FIRST OF ALL, WE CANNOT SLACKEN OUR PACE IN MODERNIZING OUR CHEMICAL ARSENAL. MODERNIZATION

APPEARS TO HAVE PLAYED A KEY ROLE IN THE FIRST REAL BREAKTHROUGHS AT THE GENEVA CHEMICAL TALKS; CONTINUED MODERNIZATION WILL HELP KEEP THEM GOING. WE NEED TO LOOK NO FARTHER BACK IN HISTORY THAN TO THE RECENTLY IMPLEMENTED INF TREATY TO VALIDATE THE WISDOM OF THIS POLICY. SECOND, WE MUST BE PREPARED FOR A WORLD IN WHICH A FEW OF THE CHEMICAL-CAPABLE NATIONS REFUSE TO SIGN OR COMPLY WITH A CHEMICAL WEAPONS TREATY. THIRD, WE MUST BE EVER VIGILANT IN IDENTIFYING NEW THREATS TO OUR FORCES AND THOSE OF OUR ALLIES. THE THREAT POSED BY NEW AGENTS AND NEW DELIVERY METHODS IS FOREVER CHANGING, SO OUR DEFENSIVE PROGRAMS MUST REMAIN ON THE CUTTING EDGE OF TECHNOLOGY. FINALLY, OUR OLD UNITARY STOCKPILE NO LONGER POSES A CREDIBLE DETERRENT TO CHEMICAL WARFARE, AND WE ARE COMMITTED TO ITS COMPLETE DESTRUCTION. I WILL DISCUSS EACH OF THESE AREAS IN GREATER DETAIL WITH ASSISTANCE FROM MY COLLEAGUES.

CHEMICAL WARFARE RETALIATORY PROGRAM

AN EFFECTIVE CHEMICAL WEAPONS RETALIATORY CAPABILITY PROVIDES THE FIRST CRITICAL PILLAR FOR CBW DETERRENCE. FOR THAT RETALIATORY CAPABILITY TO PROVIDE CREDIBLE DETERRENCE, IT MUST DENY THE ENEMY ANY ADVANTAGE GAINED BY HIS INITIATION OF CHEMICAL WARFARE. AN ADVERSARY MUST RECOGNIZE THAT OUR CAPABILITY TO RETALIATE WILL PLACE HIS FORCES IN A POSTURE AT LEAST AS CUMBERSOME AND DEGRADING AS OUR FORCES MUST FACE. THIS ADVANTAGE MUST BE DENIED THROUGHOUT THE ENTIRE BATTLEFIELD, FROM FRONT LINE COMBATANTS THROUGH SECOND ECHELON REINFORCEMENTS TO AIR BASES, LOGISTICS UNITS, AND COMMAND AND CONTROL SITES IN THE REAR AREAS. THIS ADVANTAGE MUST BE DENIED TO POTENTIAL ADVERSARIES IN EUROPE AND IN OTHER THEATERS OF CONFLICT. I HAVE ALREADY DESCRIBED THE SIGNIFICANT CBW THREATS TO OUR FORCES AND THOSE OF OUR ALLIES IN THE MIDDLE EAST.

OUR CURRENT UNITARY MUNITIONS DO NOT PROVIDE THAT CREDIBLE DETERRENCE. THAT SMALL PORTION OF THE OLD STOCKS THAT CAN STILL BE EMPLOYED HAS LIMITED MILITARY USEFULNESS. OUR PROGRAM TO PRODUCE BINARY CHEMICAL WEAPONS ENHANCES DETERRENCE AND MAKES IT CREDIBLE. OUR TRIAD OF BINARY CW SYSTEMS -- THE 155MM ARTILLERY ROUND, THE BIGEYE BOMB, AND THE BINARY CHEMICAL WARHEAD FOR THE MULTIPLE LAUNCH ROCKET SYSTEM -- WILL PROVIDE A SAFE AND EFFECTIVE CW RETALIATION CAPABILITY THROUGHOUT THE DEPTH OF THE BATTLEFIELD. THESE SYSTEMS PROVIDE EFFECTIVE CW RETALIATION IN ALL POSSIBLE THEATERS OF CONFLICT. HOWEVER, WE CANNOT RELY ON JUST ONE OR EVEN TWO OF THESE SYSTEMS TO MAINTAIN DETERRENCE; THESE ARE COMPLEMENTARY WEAPON SYSTEMS MOST EFFECTIVELY EMPLOYED TOGETHER.

THE 155MM ARTILLERY PROJECTILE PROVIDES THE CLOSE-IN, FRONT LINE RETALIATORY CAPABILITY TO OUR GROUND FORCES. PRODUCTION OF THESE MUNITIONS CONTINUES. THE BINARY CHEMICAL WARHEAD FOR THE MLRS SUPPLIES THE OPERATIONAL COMMANDER THE ABILITY TO INTERDICT SECOND ECHELON AND FOLLOW-ON FORCES AND PROVIDES TIMELY AND FLEXIBLE CW RETALIATION WITH MASSIVE, ACCURATE FIREPOWER. THIS WEAPON HAS MOVED TO FULL SCALE DEVELOPMENT WITH OUTSTANDING TESTING RESULTS. THE BIGEYE BOMB SUPPORTS RETALIATION AGAINST

REAR AREA FORCES WITH A RANGE LIMITED ONLY BY THE AIRCRAFT THAT CARRIES AND DELIVERS IT. THE BIGEYE PROVIDES THE CREDIBLE DETERRENT TO ATTACKS AGAINST OUR FORCES IN THE MEDITERRANEAN AND MIDDLE EAST AND OTHER REGIONS. THE BIGEYE IS SCHEDULED FOR CONTINUED OPERATIONAL TESTING BEFORE BEGINNING LOW RATE PRODUCTION. EACH OF THESE SYSTEMS WILL BE ADDRESSED IN SOME DETAIL BY REPRESENTATIVES FROM THE ARMY AND NAVY. IN ADDITION, WE HAVE BEGUN ASSESSING FUTURE BINARY CW SYSTEMS THAT CAN PROVIDE IMPROVED STAND-OFF RANGE, ACCURACY AND FLEXIBILITY. OUR RECENT CLASSIFIED REPORT TO THE ARMED SERVICES COMMITTEES DESCRIBES OUR PLAN FOR INTENSIFYING OUR RESEARCH AND DEVELOPMENT EFFORTS FOR A LONG RANGE STANDOFF CW SYSTEM.

WE REMAIN COMMITTED TO ACHIEVING A TRULY GLOBAL, COMPREHENSIVE AND EFFECTIVELY VERIFIABLE BAN ON CHEMICAL WEAPONS. WE WILL NOT USE CHEMICAL WEAPONS FIRST, BUT WE MUST BE PREPARED AND WILLING TO EFFECTIVELY RESPOND TO A CBW ATTACK. OF COURSE THE UNITED STATES COMMITMENT TO NEVER POSSESS OR USE BIOLOGICAL WEAPONS REMAINS FIRM. OUR RESPONSE MUST CONVINCE OUR ADVERSARY TO CEASE USING CBW. YOU HAVE SUPPORTED OUR EFFORTS FOR A MODERNIZED, CREDIBLE CW DETERRENT STOCKPILE AND I THANK YOU FOR THAT. I AGAIN ASK THAT YOU RECOGNIZE THE CONTINUING IMPORTANCE CHEMICAL WEAPONS PLAY IN OUR WORLD AND THE ABSOLUTE NECESSITY OF AN EFFECTIVE CW RETALIATORY CAPABILITY.

CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM

CHEMICAL AND BIOLOGICAL DEFENSE FORM THE SECOND PILLAR OF DETERRENCE. AS IN THE PAST, THIS PORTION OF THE BUDGET REFLECTS OUR CONTINUING PRIORITY AND NEED TO PROTECT AND EFFECTIVELY SUSTAIN OUR FORCES IN THE EVENT THEY ARE ATTACKED BY CHEMICAL OR BIOLOGICAL AGENTS. AS ALWAYS, WE WILL INVESTIGATE JOINT AND COOPERATIVE PROCUREMENT PROGRAMS FOR DEFENSIVE EQUIPMENT AS A WAY OF REDUCING OUR COSTS. HOWEVER, WE WILL CONTINUE TO INVEST IN FUTURE TECHNOLOGY.

THERE HAS BEEN MUCH DISCUSSION RECENTLY ABOUT REDUCING OUR CHEMICAL DEFENSE BUDGET BECAUSE "A CHEMICAL WEAPONS TREATY IS ON THE HORIZON." I WOULD LIKE TO REEMPHASIZE TO THE SUBCOMMITTEE THAT OUR FORCES ARE SUBJECT TO WORLDWIDE DEPLOYMENT, AND WE SEE NO EVIDENCE THAT EVERY CW-CAPABLE NATION IN THIS WORLD WILL SIGN AND COMPLY WITH A CHEMICAL WEAPONS TREATY. IN ADDITION, THE CURRENT VERSION OF THE TREATY ROLLING TEXT CALLS FOR A TEN-YEAR IMPLEMENTATION PERIOD DURING WHICH OUR FORCES WILL REMAIN VULNERABLE TO CHEMICAL ATTACK.

OVER THE LAST SEVERAL YEARS WE HAVE MADE MANY IMPROVEMENTS IN OUR ABILITY TO SURVIVE A CB ATTACK AND CONTINUE OPERATIONS. HOWEVER, WE STILL HAVE A LONG WAY TO GO TO REALIZE OUR GOAL OF SUSTAINING EFFECTIVE OPERATIONS FOR LONG PERIODS WITH LITTLE DEGRADATION. EXISTENCE OF A TREATY AND THE ELIMINATION OF OUR DETERRENT WILL INCREASE, NOT DECREASE, THE NEED TO DEFEND OUR FORCES FROM THE THREAT OF CBW ATTACK FROM NON-SIGNATORIES AND CHEATERS.

RESEARCH AND DEVELOPMENT

IN RESEARCH AND DEVELOPMENT, WE WILL CONTINUE WORK ON VERY MUCH NEEDED NEXT GENERATION DEFENSIVE SYSTEMS. TO PROVIDE OUR FORCES WITH EFFECTIVE PROTECTION, WE ARE DESIGNING OUR SYSTEMS TO DETECT, DEFEND OR PROTECT AGAINST THE GROWING NUMBERS OF CHEMICAL AND BIOLOGICAL INFECTIOUS AND TOXIN AGENTS. OUR CURRENT R&D PROGRAMS WILL ALLOW US TO BEGIN FIELDING IN THE EARLY TO MID-1990S NEW DETECTORS AND ALARMS, DECONTAMINATION SYSTEMS, AND MATERIEL (LIKE THE SOLDIER INTEGRATED PROTECTIVE ENSEMBLE AND COLLECTIVE PROTECTION FOR THE HEAVY FORCE MODERNIZATION). WE WILL ALSO COMPLETE DEVELOPMENT OF AND FIELD NEW PRETREATMENT DRUGS FOR IMPROVED PROTECTION, A SKIN DECONTAMINATION KIT, AN IMPROVED ANTIDOTE FOR NERVE AGENTS AND ENHANCED MEDICAL TREATMENT CAPABILITIES. BOTH THE ARMY AND THE AIR FORCE WILL CONTINUE PROGRAMS TO PROVIDE MUCH NEEDED BODY COOLING SYSTEMS FOR OUR PERSONNEL WHO MUST WEAR CHEMICAL OVERGARMENTS IN HIGH TEMPERATURE - HIGH WORKLOAD SITUATIONS. OTHER AIR FORCE INITIATIVES WILL FOCUS ON COMPLETING TESTING AND FIELDING OF THE AIRCREW EYE/RESPIRATORY PROTECTION SYSTEM FOR THE AIR FORCE AND THE NAVY AND THE FIXED-SITE DETECTION AND WARNING SYSTEM.

TO PROTECT OUR FORCES AGAINST ENEMY USE OF BIOLOGICAL WEAPONS, WE WILL CONTINUE OUR BIOLOGICAL DEFENSE RESEARCH PROGRAM. EXAMPLES OF MATERIEL TO BE FIELDED FROM THIS PROGRAM THROUGH THE MID-1990S INCLUDE A NEW TOXIN ANTIDOTE, A BROAD SPECTRUM ANTIVIRAL DRUG FOR TREATMENT OF HEMORRHAGIC FEVERS AND

NEW VACCINES FOR PROTECTION AGAINST INFECTIOUS BIOLOGICAL AGENTS. WE DESTROYED ALL OF OUR BIOLOGICAL WEAPONS LONG AGO. WE WILL NOT PERFORM ANY RESEARCH, DEVELOPMENT, TESTING, PRODUCTION OR STOCKPILING OF THESE WEAPONS. OUR BIOLOGICAL DEFENSE RESEARCH PROGRAM IS CONDUCTED IN FULL COMPLIANCE WITH THE BIOLOGICAL WEAPONS CONVENTION AND WITH THE CENTERS FOR DISEASE CONTROL - NATIONAL INSTITUTES OF HEALTH (CDC-NIH) GUIDELINES, "BIOSAFETY IN MICROBIOLOGICAL AND BIOMEDICAL LABORATORIES."

PROCUREMENT

THE THRUST OF THE DEFENSIVE PROCUREMENT PROGRAM IS TO INCREASE OUR STOCKS OF READINESS-RELATED EQUIPMENT (LIKE MASKS, CHEMICAL AGENT ALARMS, VACCINES AND ANTIDOTES) WHILE IMPROVING THE ABILITY OF OUR FORCES TO SUSTAIN EFFECTIVE OPERATIONS IN A CONTAMINATED ENVIRONMENT. EVERY SOLDIER, SAILOR, AIRMAN AND MARINE IN OR DEPLOYABLE TO A CHEMICAL THREAT AREA HAS THE INDIVIDUAL EQUIPMENT NEEDED TO SURVIVE THE INITIAL CHEMICAL ATTACKS, BUT THIS EQUIPMENT MUST BE UPDATED.

TURNING TO THE PROCUREMENT PROGRAMS OF EACH SERVICE, WE WILL BEGIN WITH THE ARMY. IN 1990 AND 1991, THEY WILL CONTINUE THEIR PROCUREMENT OF 1,300 SIMPLIFIED COLLECTIVE PROTECTION EQUIPMENT SETS AND BEGIN FIELDING COLLECTIVE PROTECTION FOR THE HEAVY FORCE MODERNIZATION IN THE MID-1990S. THEY WILL MAKE LARGE SCALE PURCHASES OF THE CHEMICAL AGENT MONITOR OR CAM IN FY 1990 CONTINUING INTO FY 1991. THE CAM WILL BRING A MUCH-NEEDED PORTABLE NERVE AND BLISTER AGENT SURVEY DEVICE TO THE FIELD. THE

NBC RECONNAISSANCE SYSTEM PROGRAM REMAINS ON TRACK WITH A COMPETITIVE SHOOT-OFF SCHEDULED THIS YEAR TO SELECT THE SYSTEM WE WILL BUY. THIS WILL PROVIDE OUR FORCES WITH THEIR FIRST NEAR REAL-TIME CAPABILITY TO DETECT, IDENTIFY AND REPORT CONTAMINATION ON THE BATTLEFIELD. IT WILL ALLOW OUR GROUND FORCES TO REALLY EMPLOY CONTAMINATION AVOIDANCE -- OUR FUNDAMENTAL NBC DEFENSE DOCTRINE. THE ARMY HAS REQUESTED FUNDS TO BUY 14 VEHICLES IN FY 1990 AND 28 IN FY 1991. FOR MEDICAL PROTECTION, THE ARMY AND THE OTHER SERVICES WILL FIELD PRETREATMENT DRUGS FOR IMPROVED PROTECTION, AN IMPROVED ANTIDOTE FOR NERVE AGENTS AND AN ENHANCED MEDICAL TREATMENT CAPABILITY IN THE EARLY TO MID-1990S.

THE NAVY CB DEFENSE PROCUREMENT PROGRAM CONTINUES THEIR ACROSS-THE-BOARD IMPROVEMENTS IN READINESS AND SUSTAINABILITY. THEY HAVE BECOME THE FIRST SERVICE TO FIELD A STANDOFF CHEMICAL AGENT DETECTION SYSTEM, THE AN/KAS-1 CHEMICAL WARFARE DIRECTIONAL DETECTOR. WHILE IT IS A RUDIMENTARY SYSTEM, IT DOES PROVIDE OUR NAVAL FORCES WITH THE CAPABILITY TO MANEUVER AROUND OR OUT OF CHEMICAL CLOUDS. ALONG WITH THE ARMY, THE NAVY WILL PURCHASE A SIZABLE NUMBER OF CAMS. THEY ALSO PLAN TO PURCHASE APPROXIMATELY 100 CHEMICAL AGENT POINT DETECTION SYSTEMS EACH YEAR FOR INSTALLATION ABOARD SURFACE SHIPS. THEIR COLLECTIVE PROTECTION PROGRAM CONTINUES TO FOCUS ON PROVIDING THIS IMPORTANT CAPABILITY FOR THEIR FLEET. FOR THEIR SHORE INSTALLATIONS THEY WILL PROCURE A VARIANT OF THE AIR FORCE'S SURVIVABLE COLLECTIVE PROTECTION SYSTEM. ALSO IN CONJUNCTION WITH THE AIR FORCE, THE NAVY IS FIELDING THE MCU-2/P PROTECTIVE MASK.

THE AIR FORCE PROGRAM GOAL IS TO PROTECT INDIVIDUALLY AND COLLECTIVELY ALL OF THEIR PERSONNEL IN OR DEPLOYABLE TO CB THREAT AREAS -- SOME 400,000 AIRMEN IN ALL. TO DATE, THEY HAVE FIELDED 75,000 NEW GROUNDCREW MASKS WITH OVER 100,000 MORE ON CONTRACT FOR DELIVERY THIS YEAR. THE FIRST DELIVERIES OF IMPROVED AIRCREW MASKS WILL BEGIN IN 1990 WITH F-16 AND C-130 UNITS RECEIVING THE FIRST BATCHES. THEY PLAN ON BUYING 40,000 NEW AIRCREW MASKS BY THE TURN OF THE CENTURY. THE AIR FORCE HAS ALSO BEGUN FIELDING THE SECOND GENERATION GROUNDCREW OVERGARMENT AND WILL BEGIN FIELDING ITS SECOND GENERATION AIRCREW OVERGARMENT IN 1991. ALONG WITH THE ARMY AND NAVY, THE AIR FORCE WILL ALSO ACQUIRE THE CAM.

AS IN THE PAST, THE AIR FORCE IS STRONGLY COMMITTED TO COLLECTIVE PROTECTION -- WITHOUT IT, AIR FORCE BASES CANNOT SUSTAIN OPERATIONS IN A CHEMICAL ENVIRONMENT. MORE THAN 60 WORK CENTERS HAVE RECEIVED COLLECTIVE PROTECTION WITH ANOTHER 60 PROGRAMMED TO RECEIVE IT OVER THE NEXT 10 TO 15 YEARS. THEY HAVE INSTALLED 97 SURVIVABLE COLLECTIVE PROTECTION SYSTEMS AND WILL CONTINUE PROCUREMENT THROUGHOUT THE REMAINDER OF THE FYDP. THE AIR FORCE WILL ALSO BUY THE SIMPLIFIED COLLECTIVE PROTECTION SYSTEM ROOM LINER ALONG WITH THE ARMY.

IN SUMMARY, OUR CHEMICAL AND BIOLOGICAL DEFENSE PROGRAMS WILL CONTINUE TO GENERATE IMPROVEMENTS IN THE READINESS OF OUR FORCES TO SURVIVE AND FIGHT FOR EXTENDED PERIODS IN CONTAMINATED REGIONS. HOWEVER, AS I STATED BEFORE, WHILE A STRONG DEFENSIVE CAPABILITY IS A NECESSARY COMPONENT OF A CREDIBLE DETERRENT, DEFENSE ALONE IS NOT SUFFICIENT. TO EFFECTIVELY DETER SUCH ATTACKS ON OUR SONS AND DAUGHTERS IN UNIFORM, WE NEED THE CAPABILITY AND THE DETERMINATION TO EFFECTIVELY RETALIATE WITH CHEMICAL WEAPONS ACROSS THE LENGTH AND BREADTH OF THE BATTLEFIELD.

UNITARY CHEMICAL STOCKPILE DEMILITARIZATION PROGRAM

THE THIRD MAJOR PART OF OUR CHEMICAL BUDGET IS THE CHEMICAL DESTRUCTION OR DEMILITARIZATION PROGRAM. FUNDED UNDER THE CHEMICAL AGENTS AND MUNITIONS, DEFENSE (CAMD,D) ACCOUNT, IT WILL TOTAL APPROXIMATELY $286.5 MILLION IN FY 1990 AND $313.7 MILLION IN FY 1991. WE EXPECT TO SPEND AN ADDITIONAL $1.8 BILLION BEGINNING IN FY 1992 AND CONTINUING THROUGH PROGRAM COMPLETION IN FY 1997.

I HAVE WITH ME TODAY MR. OWEN FROM THE OFFICE OF THE SECRETARY OF THE ARMY AND BRIGADIER GENERAL NYDAM, ARMY PROGRAM MANAGER FOR DEMILITARIZATION. THEY WILL DISCUSS THE DETAILS OF THE PROGRAM LATER. FIRST, HOWEVER, I WOULD LIKE TO ADDRESS ONE ISSUE OF INTEREST TO THE SUBCOMMITTEE. THAT ISSUE IS THE DEPARTMENT'S DECISION TO CANCEL CRYOFRACTURE AS AN ALTERNATE TECHNOLOGY FOR CHEMICAL MUNITIONS PREPARATION PRIOR TO THEIR INCINERATION.

THE DEPARTMENT DID NOT MAKE THIS DECISION HASTILY OR RASHLY. AFTER REVIEWING ALL OF THE EVIDENCE AND ALL OF THE PROGRAMMATIC DATA, WE COULD COME TO NO OTHER DECISION. WE DID NOT CANCEL CRYOFRACTURE SIMPLY BECAUSE IT HAD NO MERIT. HOWEVER, WE WERE

FORCED TO CONFRONT THREE MAJOR PROBLEMS: SCHEDULE, CRYOFRACTURE'S LIMITATIONS AND COST.

THE CRYOFRACTURE DEVELOPMENT PROGRAM IS MORE THAN FOUR YEARS BEHIND THE BASELINE DISASSEMBLY PROGRAM. IF WE RESTORED ALL OF THE FUNDS TO THE CRYOFRACTURE PROGRAM AND ASSUMED NO DELAYS DUE TO PROBLEMS WITH ENVIRONMENTAL IMPACT, TESTING, EQUIPMENT PRODUCTION AND SAFETY, THE SINGLE PLANT WE PROPOSED TO BUILD AT ONE OF THE NINE DESTRUCTION SITES WOULD ONLY HAVE LESS THAN SEVEN MONTHS OF WORK REMAINING BEFORE ALL OF THE CHEMICAL MUNITIONS THERE WERE DESTROYED.

CRYOFRACTURE ALSO HAS IMPORTANT LIMITATIONS. IT IS NOT SUITABLE TO DESTROY SPRAY TANKS, BOMBS AND THE ONE-TON CONTAINERS OF BULK STORED AGENT. THESE ITEMS ALONE MAKE UP ABOUT 65 PERCENT OF THE STOCKPILE TONNAGE WE MUST DESTROY. WE ARE ALSO VERY CONCERNED ABOUT THE SAFETY AND EFFICACY OF USING A SINGLE, MASSIVE ROTARY KILN TO SIMULTANEOUSLY INCINERATE AGENT, METAL PARTS AND EXPLOSIVES. MUCH MORE TESTING WOULD HAVE TO BE DONE IN THIS FIRST-TIME EVER EXPERIMENT OF THIS TYPE WITH THIS KILN.

FINALLY, LIKE ALL OTHER AREAS OF GOVERNMENT, WE ARE CONCERNED ABOUT COST. WE CANNOT WITH GOOD CONSCIENCE JUSTIFY SPENDING $200 MILLION ON A PROGRAM THAT PROVIDES ONLY MARGINAL BENEFIT TO THE CHEMICAL DEMILITARIZATION PROGRAM. WE FULLY REALIZE DEMILITARIZATION IS A JOB WE MUST DO. HOWEVER, WE MUST ALSO REMEMBER THAT MONEY SPENT ON THIS PROGRAM BUYS THE DEPARTMENT OF DEFENSE ABSOLUTELY NO INCREASE IN WARFIGHTING CAPABILITY. IN FACT, EVERY DOLLAR SPENT REDUCES THE AMOUNT THE ARMY CAN USE TO

IMPROVE ITS CAPABILITIES. IF THE DEPARTMENT WERE REQUIRED TO SPEND $200 MILLION ON CRYOFRACTURE, THE FUNDS WOULD COME FROM OUR DEFENSIVE PROGRAMS SINCE THE RETALIATORY PROGRAMS ARE ALREADY AT MINIMAL LEVELS. THAT MEANS THE SOLDIERS, SAILORS AND AIRMEN WOULD NOT GET MANY OF THE CRITICALLY NEEDED NEW ITEMS THAT COULD IMPROVE THEIR SURVIVABILITY AND INCREASE THE AMOUNT OF TIME THEY COULD SUSTAIN OPERATIONS IN A CHEMICAL ENVIRONMENT. THINGS LIKE COLLECTIVE PROTECTION SYSTEMS, ADVANCED DETECTORS AND IMPROVED DECONTAMINATION SYSTEMS. WE WOULD TRY TO AVOID CUTS TO READINESS ITEMS LIKE MASKS AND CHEMICAL PROTECTIVE OVERGARMENTS, BUT WE MAY NOT BE ABLE TO DO SO.

ADDITIONALLY, WE WOULD NOT HAVE CANCELLED CRYOFRACTURE IF WE DID NOT HAVE THE FULLEST CONFIDENCE IN THE BASELINE DISASSEMBLY TECHNOLOGY PROGRAM. WE HAVE NO DEMONSTRATED EVIDENCE TO DATE THAT CRYOFRACTURE IS ANY SAFER, BETTER OR MORE COST EFFECTIVE THAN THE BASELINE SYSTEM. WE WILL ADJUST THE START OF OPERATIONAL TESTING OF THE DISASSEMBLY AND INCINERATION SYSTEM AT JOHNSTON ATOLL BY SEVERAL MONTHS TO PUT US ON A MORE REALISTIC SCHEDULE FOR PROVING OUT A COMPLEX PLANT AT A REMOTE LOCATION. THIS ADJUSTMENT WILL NOT DELAY CONSTRUCTION AT TOOELE, UTAH OR THE SCHEDULED PROGRAM COMPLETION DATE OF 1997. WE ARE MAKING GOOD PROGRESS AND HAVE GREAT CONFIDENCE THAT THIS SYSTEM WILL ACCOMPLISH THE MISSION IN A SAFE AND COST-EFFECTIVE MANNER. MR. OWEN AND GENERAL NYDAM WILL PROVIDE MORE DETAILS.

SOME HAVE NOTED THAT CRYOFRACTURE MAY BE USEFUL FOR DESTROYING OTHER NON-CHEMICAL MUNITIONS AND TOXIC WASTE.

THEREFORE, SOME FEEL WE SHOULD HAVE PRESERVED IT IN THE CAMD,D BUDGET. IF THE OTHER POTENTIAL USERS OF CRYOFRACTURE FEEL THAT STRONG A NEED, I INVITE THEM TO FUND IT FROM THEIR OWN PROGRAMS.

AFTER REVIEWING THE EVIDENCE, I THINK THAT THE MEMBERS OF THIS COMMITTEE AND THE AMERICAN PUBLIC WILL AGREE WITH OUR DECISION.

SUMMARY

TODAY I HAVE PRESENTED TO YOU THE DEPARTMENT OF DEFENSE PROGRAM FOR CHEMICAL WARFARE AND CHEMICAL AND BIOLOGICAL DEFENSE. WE HAVE A VERY REAL AND GROWING THREAT THROUGHOUT THE WORLD BECAUSE OF THE WARSAW PACT'S CONSIDERABLE CAPABILITIES AND THE PROLIFERATION OF CHEMICAL AND BIOLOGICAL WEAPONS AND THE LINKAGE, BY SOME NATIONS, OF CHEMICAL ARMS CONTROL TO NUCLEAR ARMS CONTROL.

WE COMPLETELY SUPPORT THE ADMINISTRATION'S EFFORTS TO NEGOTIATE A GLOBAL AND EFFECTIVELY VERIFIABLE CHEMICAL WEAPONS BAN. HOWEVER, EVEN IF WE SHOULD ACHIEVE A CHEMICAL TREATY, WE WILL ALWAYS NEED A DEFENSIVE PROGRAM. UNTIL SUCH A BAN IS IN EFFECT, WE MUST ALSO MAINTAIN A CREDIBLE CHEMICAL RETALIATORY CAPABILITY TO DETER CBW ATTACKS ON OUR FORCES AND THOSE OF OUR ALLIES.

IN MY OPENING REMARKS, I SAID THE DEPARTMENT NEEDED YOUR HELP. WE HAVE GREATLY APPRECIATED YOUR SUPPORT IN THE PAST, AND I HOPE WE HAVE CONVINCED YOU TO EXTEND IT AGAIN.

CHEMICAL WEAPON STOCKPILE

Mr. MURTHA. What is our production level right now? What is our stockpile?

Dr. WELCH. ———. Only ten percent of ———.

Mr. MURTHA. How does that compare to these other countries?

Dr. WELCH. The other countries can ——— if they produce to their capacity, equal the agent tonnage that we have in that useful stockpile.

Mr. MURTHA. Put in layman's term so that I can understand what we are talking about here.

For instance, if you use this, how much do you have? What kind of a weapon would it be?

Dr. WELCH. We believe the military significant quantity of chemical agents is probably ——— for a given scenario in the Central Region. That is enough in the hands of the Soviets to contaminate most of the airfields and seaports that we plan to use in Europe to reinforce our forward deployed forces.

Mr. MURTHA. ———?

Dr. WELCH. Yes.

That is not very much to produce and when you start talking about the Soviets having ——— agent tons and that is the uncertainty range we are looking at, they have more than enough to hurt us. ———.

Mr. MURTHA. What was our figure?

Dr. WELCH. Our figure for the total existing stockpile, unitary stocks, is about ——— ten percent of which is regarded as having some military utility ——— and that is a stockpile that we are destroying as we modernize with binary munitions. Our objective is a smaller, safer and more militarily useful retaliatory stockpile. ———.

Mr. MURTHA. The significant usable amount is ———?

Dr. WELCH. ———.

Mr. MURTHA. You may not have that much or you may have more?

When you say conservative, which way?

Dr. WELCH. On the low side ——— used against the U.S. as we project forces into airfields and seaports in any region.

If any country has between ——— tons of chemical agent, we regard that as a militarily significant range.

If they have ——— they have more than they really need.

Mr. MURTHA. Would the Soviets, if they knew our capacity, would they be concerned about that amount?

Dr. WELCH. ——— but they also understand that we are very much dependent upon those ports, very much dependent upon those airfields. They are not.

Their railroads and roads are built. They don't have the choke points we would have, so they may not be deterred symmetrically here. ———. It is not something that requires precursors, not something that you can control easily by COCOM kind of controls.

The international trade in the laboratory equipment needed for bioengineering and so on is wide open.

It has a lot of commercial applications, one of which is—here is a biotechnology product generated by a microbe. It puts out something which we find sweet in our coffee.

This is a technology which has proliferated for good civilian reasons.

It is possible, however, to use the same technology to make new agents.

You have to remember that the chemical business is one of measure, countermeasure, counter-countermeasure. Everything that you have appropriated funds for over the last few years is for equipment that is designed to detect or protect against a list of known chemical agents. It is not a universal protection system for the soldier.

I am saying that if our adversaries, ——— are able to put on the battlefield agents that we don't know about, we have some real challenges.

As I told you a couple of years ago, we have directed the research and development program within the DOD to attempt to build some protective equipment against agents, any agent harmful to man.

We have said we are not going to be able to know precisely what this agent is going to be, but the soldier needs detectors and masks and decontaminants that will take care of these new agents.

We have made good progress and a great deal of what is in the five-year plan, the dollars we are talking about here, are to finish the research and development of these new systems.

FUNDING FOR CHEMICAL WEAPON PRODUCTION

Mr. **Murtha**. How much money do you have in production right now? How much money is for production of chemical weapons?

Dr. **Welch**. At the moment, we are only producing the 155 artillery shell and can someone tell me what the fiscal year 1990 request is?

$47 million to continue production.

FUNDING FOR CHEMICAL DEFENSE

Mr. **Murtha**. For chemical defense, how much money are we talking about?

Dr. **Welch**. It has been running on the order of 70 percent of our budget request, so that is about $740 million.

Mr. **Murtha**. We are talking about gas masks, suits that you put on, the decontaminates that you spray on airplanes, and the washing equipment you have in the field?

Dr. **Welch**. That is correct.

Mr. **Murtha**. This is $740 million this year?

Dr. **Welch**. It is approximately that and it has been for the last couple of years.

Mr. **Murtha**. What proportion of the troops are equipped with this equipment now?

Dr. **Welch**. All of our troops are equipped with masks, overgarments and the standard gear. Our concern is that with ——— new chemical agents, this material could be neutralized, made obsolete by these new agents so we are very much pushing the Services to pursue new masks, new detectors, new overgarments, especially those that are universal in nature——

Mr. **Murtha**. How much of this is R&D?

Dr. **Welch**. The answer to that is in our prepared statement. It runs perhaps $350 million a year, if you consider all of the R&D going on in the Services.

Mr. **Murtha**. So we are spending $740 million on buying obsolete equipment?

Dr. **Welch**. No. I wouldn't say that at all. Much of the new equipment that we are producing is—while not universal, has been made flexible.

By flexible, I mean this is going to be able to adapt to the new agents when they arrive. This is new.

Mr. **Murtha**. So what is the $740 million going for here?

Dr. **Welch**. We are procuring new masks.

Mr. **Murtha**. When you say new masks, what do you mean?

Dr. **Welch**. They have been developed and are going into production.

Mr. **Murtha**. So the troops in the field don't have that particular mask?

Dr. **Welch**. No, they do not. This new mask has a charcoal filter on the outside which means a soldier can take it off and put a new one on and once we find out what the new agent is, we can design a new filter.

Mr. **Murtha**. Does it protect against new agents now?

[Clerk's note.—Classified discussion removed.]

Mr. **Murtha**. You don't know at this time?

Dr. **Welch**. We don't know and we may never know.

Mr. **Murtha**. So it is going for masks and what else?

Dr. **Welch**. For what we call collective protection equipment, which means taking a room like this, if it is in a battle area, we need to cause this room to have enough overpressure, enough pressure built up that no fumes, no dangerous toxic fumes are allowed to get into it.

Mr. **Murtha**. This is all competitively bid; all this equipment?

Dr. **Welch**. A great deal of it is. I doubt if I can tell you that all of it is.

In some cases, it is in the interest of the government not to do that.

Mr. **Murtha**. So we have no problem with the buying of the defensive equipment?

Dr. **Welch**. There is no problem, but defense is not sufficient in our business.

We are requesting from the committee, funds to produce chemical retaliatory systems, weapon systems.

The reason we have to do that is the masks, the overgarments, the gloves the soldier has to wear, are so debilitating, so degrading to the effectiveness of the soldier, that an enemy is invited to use chemical weapons even if he doesn't kill any of our soldiers.

After a few hours, the performance of a soldier is degraded ——— just because of the overgarment and the mask.

We know from tests run at Air Force bases in Europe that our sortie rate guickly drops significantly ——— as soon as airmen get into these overgarments and masks and gloves ———. So even if you don't kill somebody, it is inviting if you can tell your commander you are going to decrease the fighting ability of the Americans ———.

So we have to ask for funds to build retaliatory systems and right now with the Middle East as unstable as it is with new nations possessing ballistic missiles and chemical weapons——

BIGEYE CHEMICAL BOMB

Mr. **MURTHA**. What are the retaliatory systems you are talking about?

Dr. **WELCH**. The one we need for the Middle East is something that can be carried on aircraft carriers, the Bigeye bomb.

Mr. **MURTHA**. How much money is in there for the Bigeye bomb?

Dr. **WELCH**. I have the project manager, Captain Pfitzenmaier, who is the Bigeye Bomb Program Manager, to give you that exact figure.

We have been appropriated $15 million for fiscal year 1989, and we have an operational test to go through before we can go into low-rate production, according to last year's language. Larry can tell you what those outyear dollars will be.

Captain **PFITZENMAIER**. Good afternoon, Mr. Chairman.

Our proposed funding for fiscal year 1990 is $6.9 million. That is Air Force funding and it is anticipated to be used solely for the procurement of what we call safe separation test vehicles.

It is important for me to emphasize that as a result of last year's congressional language, we were precluded from entering low-rate production and it was required that we continue in our testing phase and that no additional procurement funds would be authorized until testing was satisfactorily completed.

Procurement of safe separation test vehicles in fiscal year 1990 makes sense to us. It is something that is required by the Air Force and it will provide an element of program continuity to the prime contractor.

Mr. **MURTHA**. So you have a plant down in Pine Bluff, Arkansas, if I remember, that is used for the Bigeye bomb?

Captain **PFITZENMAIER**. Sir, the plant to manufacture the bomb, bend the metal, is in Van Nuys, California at the Marquardt Company.

However, you are correct from the standpoint that we have facilities at Pine Bluff, Arkansas for manufacturing the liquid component, QL, and for loading the bomb.

Mr. **DICKS**. Is this Bigeye we are talking about?

Captain **PFITZENMAIER**. Yes.

Mr. **MURTHA**. Mr. Dicks?

BIOLOGICAL WARFARE

Mr. **DICKS**. Thank you, Mr. Chairman.

Dr. Welch, you mention in your statement that the 1972 Biological Warfare Convention prohibits possession of biological weapons, but you state that we know that at least ten countries have biological warfare programs. Which countries?

Dr. WELCH. That is quite correct, Congressman Dicks. I have said that we are aware of at least ten, and I would say we are unable with resources to watch all countries.

In my judgment, there are probably more. ———.

I should tell you that nearly all of these countries are signatories to the Biological Weapons Convention which prohibits possession, so they are in violation of this convention.

Mr. DICKS. What is the United States doing in biological warfare?

Dr. WELCH. The United States is doing nothing in biological warfare.

Mr. DICKS. What are we doing about biological weapons then or R&D on biological weapons?

Dr. WELCH. Because these countries, a number of which are not friendly to the United States, have opted to investigate these weapons, we are asking for funds to help field material which will give the soldier some defense against them.

This means a mask, a detector, and other things. We are also, as I mentioned earlier, concerned about ——— others using biological means to produce chemical biological and toxin agents which will defeat, at least in part, our defenses.

Modern technology, especially genetic engineering and biotechnology give adversaries, including those without a large industrial base ——— the capacity to develop and field agents for which we do not have detectors and for which we may have some other defensive problems.

So we are pushing the intelligence community hard and we are also pushing the research and development community within the DOD to field equipment which is either flexible in nature, which can be easily adapted to counteract these new agents, or which is universal in nature which does not require prior knowledge of what the agent is.

We have made good headway and some of the funds we are asking for in R&D are to continue these new defensive systems.

Mr. DICKS. Are you denying publicly any U.S. research into developing biological agents for deterrence?

Dr. WELCH. Yes, absolutely. We are in full compliance with the 1972 Biological Weapons Convention.

We are not involved at all in the development of biological agents. We have renounced that. We are doing no research and development.

We will, however, continue to use small amounts of threat biological agents, and we are talking about thimble-full size amounts, to find out if our masks work, to find out if our detectors and antidotes work.

All of this program is unclassified. It involves people within the Department as well as within industry, and the pharmaceutical communities and universities.

We are doing it very carefully. We follow the guidelines of the NIH and CDC when we work with these things.

These agencies also work with biological specimens which have similar lethality in the development of pharmaceuticals, vaccines, and other research, so it is not just DOD that is interested in small amounts of these substances for good purposes.

It is also universities and hospitals and others.

NEW BINARY SYSTEMS

Mr. DICKS. You say in your statement that, "we have begun assessing future binary CW systems that can provide improved standoff range, accuracy, and flexibility". We are now producing an artillery projectile and an air-delivered bomb and we are developing a binary chemical warhead for the MLRS. What additional systems are being considered and why?

Dr. WELCH. The Congress in the last couple of years, and indeed the JCS for the last couple of years, have said we should start thinking about a follow-on to the Bigeye bomb because of its limited standoff delivery capabilities in the face of increasing air defenses.

We need to build a small number of Bigeyes to take us to the point of where we could have a follow on the Bigeye which would have a greater standoff range, maybe 50 miles, maybe 500 miles, maybe something in between.

We are also concerned in a qualitative way about these new agents.

You know our objective is deterrence, and that means we pose to an adversary a credible retaliatory capability coupled with adequate defenses.———.

So that work has progressed. I hope that is responsive to your question.

Mr. DICKS. Are there any specific systems, additional systems?

Dr. WELCH. There are no other additional systems that we have planned.

Mr. DICKS. Will these new systems use different agents than are used for the GB-2, the Bigeye or MLRS?

Dr. WELCH. The decision remains to be determined on that ———.

Mr. DICKS. To offset what the other side is doing?

Dr. WELCH. That is correct.

Mr. DICKS. Thank you, Mr. Chairman.

Mr. MURTHA. Mr. McDade, do you have questions on production?

GB-2 BINARY CHEMICAL PROJECTILE

DC PRODUCTION FACILITY

Mr. McDADE. Thank you.

I want to talk to you about the GB-2 binary chemical projectiles. The budget includes $47 million for procurement of ——— GB-2 binary chemical artillery projectiles. A total of ——— GB-2 projectiles have been funded to date, beginning in fiscal year 1986. One of the chemicals needed for this round is DC, a production facility which is under construction at Pine Bluff Arsenal.

Last year we were told that the facility would be completed in September 1989, proveout would take place between October and December 1989, and the plant would be ready for full production in January 1990. What are your current estimates?

Dr. WELCH. I will ask, with your permission, Congressman, to have Michael Parker, who is the program manager for binary munitions respond to that question.

Mr. Parker. We are still on schedule to meet those dates that you just outlined.

We are looking towards proveout in mid-October and towards full production capability by January.

Mr. McDade. Last year we were told that you had a DC stockpile sufficient to produce about ———.

How can your facility be producing at the full rate from September to December when it is not proven out?

Mr. Parker. Sir, we are showing a small gap about that time, September, of approximately a month or a month and a half, I believe, on the detail schedule to allow us a period of time to bring that facility on line at the full rate.

Mr McDade. So the justification material is not accurate; in other words, you are showing October and November, December, et cetera, and you are showing a rate of ———?

You are not going to do that?

Mr. Parker. If that is the justification material, then we need to correct that, but it should show in the DC production, the DF production, the M–20 canister production approximately a one-month lag to bring that facility on line.

Mr. McDade. You will need to correct those and give us a detailed statement for the record and make sure the staff gets it because it appears that that is inaccurate.

[The information follows:]

The background justification material is correct and does forecast a break in M20 canister production mid-September to mid-October 1989. The Army anticipates bringing the DC chemical plant on-line quickly and without major problems based on the excellent startup history with the DF chemical plant. The contractor was able to start the DF chemical plant and have it at the required rate with very high grade chemical product within a few weeks period. We are anticipating a similar smooth startup on the DC chemical plant due to the similarity of the chemical process and a strong, experienced start-up team consisting of the design contractor and the very experienced DF chemical plant operating contractor. The significant thrust during the prove out will be toward optimizing the process after attaining the quantity rate early on. Improving yield, reducing process cycle time, reducing operational manpower and demonstrating environmental compliance will be the goal of the prove out effort.

GB–2 CONTRACTS AND DELIVERIES

Mr. McDade. Last year when the Committee questioned continued funding for GB–2 because of schedule and delivery delays, you stated that "failure to fund in fiscal year 1989 will disrupt the production program and delay its completion."

Congress appropriated $45.9 million for GB–2 last year. Having done all that, we see that all but one of the 1989 fiscal year contracts for this program will not be awarded until fiscal year 1990. Is that correct? You are only going to be able to do one contract in fiscal year 1989?

Mr. Parker. I believe all the contracts are in place.

Mr. McDade. Are they awarded? Our data shows that you are going to award one late in 1989 and then you go over to 1990.

Take your time and look at it because it is an important question. It seems to us that if you can't get the contract in place, there is not much need for us to be funding additional GB–2, in fiscal year 1990.

That is your information. It is right from your justification book.

Mr. **Parker**. I think it is a problem of interpretation. The Louisiana Army Ammunition Plant operation is a multiyear contract, and the contract is in place. Award is laying off the increment of money against the contract. The contracts are in place.

Mr. **McDade**. Is that the award date now? You are showing one contract with June 1989 as the award date. Is that the contract your are referring to, for Louisiana?

Mr. **Parker**. Yes, sir.

Mr. **McDade**. Then you go all the way to March of 1990 for fill and LAP on the M–20 canister and to February 1990 for canister metal parts and LAP-ing on the M–21 canister. In other words, if you look at what you gave us on the award dates, you are showing a lot of this slipping into fiscal year 1990. If that is the case and if the date you gave us is accurate, then we have a question about whether we should continue to fund at the rate we did last year when you said you were going to get it all done.

Mr. **Parker**. What we had presented last year was that the program would be executed in accordance with the full funding rule and within the funded delivery period as defined by the Congress and we will do that.

These execution dates or award dates are increments of funding of existing contracts. Most of these are multi-year contracts and is a matter of laying the money off on the contract.

Mr. **McDade**. But you are styling them as contract awards as if they are brand-new awards and they are for the ingredients for the GB–2, are they not?

Mr. **Parker**. Yes, sir; they are for components.

Mr. **McDade**. They are not in place, are they?

Mr. **Parker**. The contracts are in place.

Mr. **McDade**. None of this work is being done according to your budget justifications until fiscal year 1990.

You take a look at the data that you submitted, clean it up if you have to, and give us a very strong statement and do it quickly so that we can understand if there is some miscommunication here because it doesn't look like there is much reason for us to begin forward funding when you haven't got all the contracts out and are not ready to go.

We are going to have a very difficult budget year. We are looking for every penny we can get and if there is some give-up in there, tell us about it.

We may find it anyway.

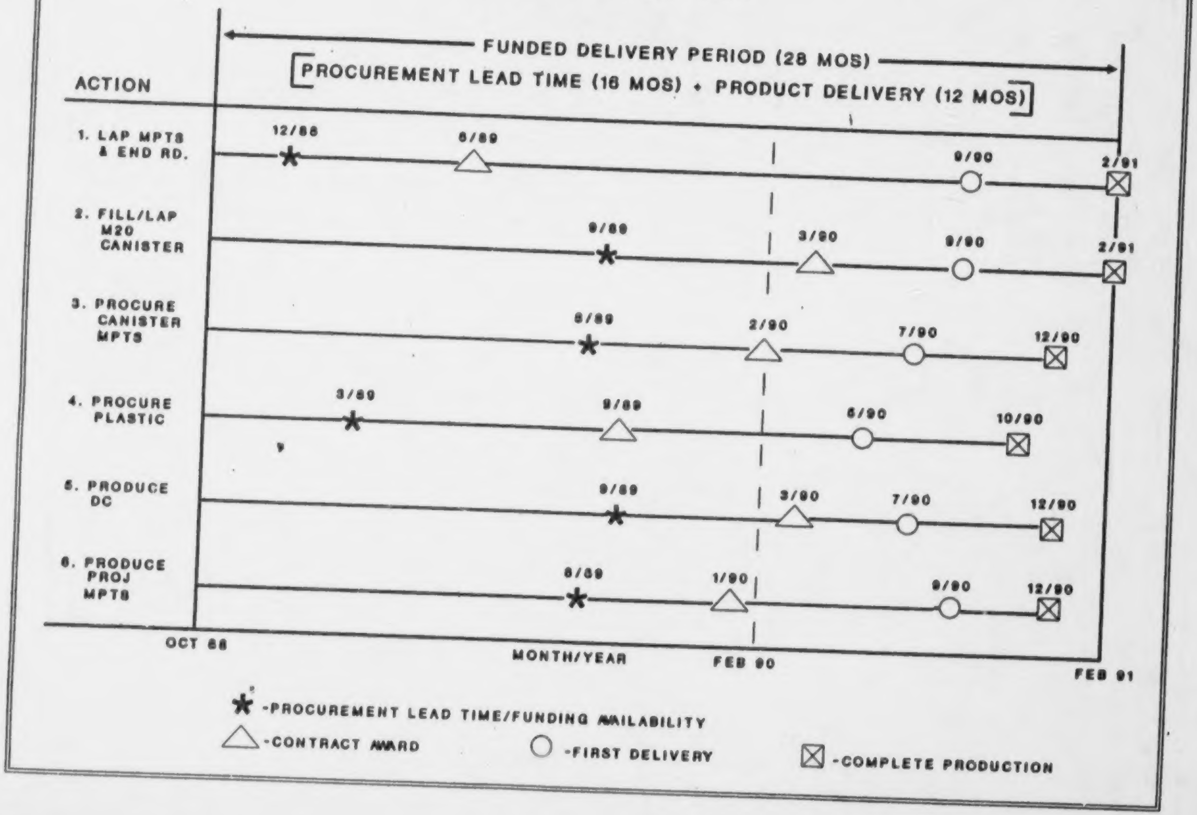
[The information follows:]

The $45.9 million was appropriated for fiscal year 1989 was necessary to maintain program continuity between the fiscal year 1988 and the requested fiscal year 1990 programs while complying with the full funding rule policy of the Congress. This policy requires DOD to request all funds necessary to produce the requested quantity of projectiles. Incremental funding over a number of fiscal years to attain the desired quantity is not permitted. The background justification material shows an "award date" which, in most cases, is a modification to an existing contract. The award date is the date the modification is required. The date does not include administrative time required to prepare the necessary contractual actions. Army policy requires that the funds be available at the point administrative contract action is initiated. The administrative time varies but is in the 3 to 6 month time frame. Adding the administrative procurement lead time on the front end of the award date places the need for funding well within fiscal year 1989 for execution.

The funding required to contract for the full fiscal year 1989 quantity of M687 is necessary in fiscal year 1989 and will be executed within the funded delivery period.

[CLERK'S NOTE.—The above insert makes no changes to contract award dates included in budget back-up forms. Of the 8 contracts for this program, 1 will be awarded in fiscal year 1989 and the remainder in fiscal year 1990. The Army submitted the following chart in further explanation:]

M687 PROJECTILE PROCUREMENT TIME LINE
FY89 PRODUCTION



GB-2 CANNISTER DELIVERIES

Mr. McDade. The manufacturer of the two canisters for the GB-2 had difficulty making and delivering an acceptable product. As a result, deliveries from the fiscal year 1986 contract did not begin until ———. How confident are you that the contractor can meet the current "recovery" schedule?

Mr. Parker. The contractor did, in fact, have a great degree of difficulty starting. He has since the December time frame taken some pretty extraordinary measures as has the government.

The Army imposed a unilateral modification to that contract, imposed a significant penalty, $1.3 million penalty against the contractor to defer the costs incurred due to the late deliveries to Pine Bluff and Louisiana and the contractor since then has turned around.

He is delivering a quality product and delivering it in accordance with the unilateral contract modification delivery schedule.

Mr. McDade. Is he back on schedule?

Mr. Parker. Yes. Against the revised delivery schedule——

Mr. McDade. What was the problem in fulfilling the contract? It is not a tricky item, is it?

Mr. Parker. No, sir. His problem, I think, was basically underestimating the degree of difficulty of starting a new production line.

It is bringing on new people, training those people. He procured equipment from subcontractors who were late and in some cases the equipment was not capable of producing at the required rate. Also, the environmental permits required in California took the contractor much longer to obtain than he had estimated.

Mr. McDade. Just plain bad management?

Mr. Parker. Yes, sir.

Mr. McDade. Have you got it under control?

Mr. Parker. I believe so.

Mr. McDade. We need to have a real strong statement from you. If you have a line in trouble or any kind of a program in trouble, we need to get a real clear impression of what is happening because we are going to look for every dollar in this budget.

[The information follows:]

The contractor supplying the canisters has taken the steps necessary to get well as evidenced by significantly improved product quality and shipping rate. The company has been reorganized, a new manufacturing-oriented acting president is in place and the day-to-day execution of canister production is being directed by the VP of Manufacturing. Contractor has a full compliment of automated equipment online, permitted by the State of California and operating. We are confident that the contractor will execute effectively against the current contract. The other elements of the M687 production base, Pine Bluff Arsenal and Louisiana Army Ammunition Plant are doing an excellent job and have already demonstrated the ability to meet the production schedule.

Mr. McDade. Provide for the record the original contract delivery schedule, by month and item, the current schedule, and the actual deliveries.

[Clerk's note.—Classified insert removed.]

Mr. McDade. Let me ask you again, have you got him under control?

Mr. Parker. We believe they are under control and they will make their deliveries.

Mr. McDADE. What are your procurement strategies for the canisters for fiscal year 1990 and beyond?

Mr. PARKER. We are putting that together now to determine whether or not we should preclude the current contractor from bidding in total and go out on a second source or do a split by allowing the current contractor to bid a portion of the future buys and the balance competitively procured.

Mr. McDADE. When will you know?

Mr. PARKER. We would like to have another month with the current contractor to get a better feel on his ability to follow through and then make a decision.

Mr. McDADE. So a month from today, you will know whether you are going to continue with the current fellow or abandon him and go to somebody else?

Mr. PARKER. We will continue the current contract and make a determination if we have to go out for a completely new second source.

Mr. McDADE. Thirty days from today, you will know that?

Mr. PARKER. I believe we will make the decision by then, yes.

Mr. McDADE. Thirty days from then, let us know.

Mr. PARKER. Yes, sir.

[The information follows:]

The Army will finalize the outyear M687 canister procurement strategy by the end of April 1989. A number of approaches are being considered all of which will be competitive. Full and open competition for the FY 1990-92 quantities with the FY 1991/92 buys as a priced option is one approach. A modification of this would permit bidders to provide M20 canister components only or M21 complete canisters only. Precluding the current contractor from bidding future buys is being considered to broaden the production base. Splitting the FY 1990-92 buys approximately in half, with one portion full and open competition and the other full and open competition excluding the current contractor, is being considered. The finalized approach will be provided to the committee when completed.

Mr. MURTHA. Mr. Miller.

LIBYAN CHEMICAL FACILITY

Mr. MILLER. Gentlemen, if you would give us a little background. I understand that you had talked a minute or two concerning the Libyan facility, but can you tell us what type of chemical weapon that it would or could produce? Do you have background on this?

Dr. WELCH. Yes. ———. We also assess from its size and equipment that it will be able to produce ——— at full production enough chemical agents to equal, approximately equal, what the United States has in its current useable stockpile, just to give you an idea of what we are talking about here.

We also believe that what we call a military-significant quantity of chemical agent, something which is enough to have a very decisive effect on a war, ——— could be produced in that plant.

The Libyans can produce that militarily significant quantity ——— if they really wanted to go after it. So it is a very significant—militarily significant development.

Mr. MILLER. Were they in production at one time and then had a problem which stopped production? Have they restored production?

Dr. **Welch.** ———.

Mr. **Miller.** I am not sure that we can go into great detail about that at the present time, but I guess some of it has been in the newspaper, too ———.

Would you have the information as to whether that is something for domestic market? Is that something that could be enclosed and used in a bomb?

Dr. **Welch.** It is my informed judgment, my assessment, that you can use these plastic containers to contain chemical agents, place these chemical containers into a warhead, and use them in war. ———.

We might see it as a very crude way of doing business, but we are using plastic containers in our 155 binary shell. They are carefully put together, but my own assessment again is that those plastic bottles might well be used for chemical munitions.

Mr. **Miller.** We have also heard of the Japanese helping Libya develop a chemical weapons capability. Do you have any information as to whether that may be true?

Dr. **Welch.** We have some very sensitive information about the nationality of the people who have and who are assisting in the Libyan chemical warfare plant, but I would have to transmit those to you separately, Congressman, outside of this hearing.

Chemical Weapon "Leakers"

Mr. **Miller.** With respect to our current stockpile of chemical weapons, we hear of leakers. How many leakers do we have? How big is that problem?

Dr. **Welch.** When I last asked that question, we had about 1,000 leakers, chemical munitions that were leaking that we had identified and which we had totally encapsulated so they didn't present any hazard to the environment or to safety.

We spend about $60 million a year guarding and looking for leakers in our chemical weapons stockpile, which, as you may know, is decades old and is no longer of utility.

We think the problem is under control, but it also at the same time tells us to be good managers and as good managers, if it doesn't have any military utility and it poses possible hazard to the environment or to safety, let's get on with its destruction. We don't need it.

We are, of course, asking the subcommittee to fund a destruction process or a demilitarization process. We have with us today the general officer responsible for chemical demilitarization, General Nydam. If you like, I could bring him up and he can answer in more detail your question.

Mr. **Miller.** First, I might ask, you have stated that we have about one thousand leakers, but how does this compare with a year or two years ago? Are we increasing a great deal every year?

Mr. **Owen.** Yes, sir. We have for a number of years informed the Congress and the general public that one of the reasons we needed to dispose of the unitary stockpile was that it would constitute a danger in its just being stored after so many years. That is the case.

We currently have approximately 1,000 leakers. The most recent data that we have for the last three months indicates that there has been an increase. The exact reason for that increase at this time, we do not know. That increase also occurred during the winter months, which would be the least likely time for leakers to show their heads.

However, we still do not see any data there that would cause us to sound an immediate alarm bell that all of a sudden our stockpile was starting to very rapidly deteriorate. We have some blips on the screen that we will have to further analyze.

All the information we have at this time would continue to cause us to very carefully scrutinize and monitor that stockpile as intensely as we are now and we feel that that is also another reason that we must get on with the chemical demilitarization program, keep it on schedule, and keep the dollars coming to allow us to keep it on schedule so that we can destroy the stockpile. It will not last forever.

General Nydam, do you have anything to add to that?

General **Nydam**. No, just that we have predicted about 64 leakers per year based on previous data analysis.

Last calendar year, we had 81 leaking munitions and the first quarter up through January 1 up through currently today we have had 49.

Most of those have been rockets, but there is an increase now in the number of projectiles and ton containers that we are seeing.

It is cause for us to make sure we continue to look at the problem, but there is no cause for particular alarm at this time.

Mr. **Miller**. Would you say the oldest are leaking first and it is a deterioration of the container that will allow this?

General **Nydam**. It is usually a deterioration of the container. If we find that we have a particularly bad or nasty lot we go in and survey it more.

So it is hard to say right now whether we are having more leakers each year or whether we are discovering more because of the intensified surveillance program.

Mr. **Miller**. You have not changed your detection apparatus and replaced it with improved equipment which can pick up leakers better than you could with other equipment?

General **Nydam**. No, sir.

We are just looking at it more aggressively to try to determine whether we do have a real problem on our hands.

Mr. **Miller**. I guess maybe we would cover this a little more later. Very good. Thank you, General.

Bigeye Chemical Bomb

Mr. **Murtha**. Mr. Livingston.

Mr. **Livingston**. I have some questions, Mr. Chairman.

I understand that the GAO drafted some comments on the Department's Bigeye, and I wondered if you had any response or comment about their opinions that you would like to share with the committee? Please bring us up to date on the Bigeye and whether or not the $15 million is sufficient.

Dr. **Welch**. No, because we have just received the GAO report and have not finished our assessment of it, we can't give you a complete answer. We are open to suggestions that it might be in our interest to go back and to do some additional engineering kinds of testing to increase our confidence level that the development tests are, indeed, as good as we think they are, but I can't add too much more to it.

I would ask Captain Pfitzenmaier to comment on your question.

Captain **Pfitzenmaier**. Good afternoon, sir. We are still assessing the comments on the GAO report. We will have a response in the required time frame and in the appropriate format and I believe that is in a matter of weeks.

Regarding the $15 million, within the constraints of the congressional language of last year which precluded entering low rate production and demanded testing and subsequent test results, the $15 million is sufficient for us to achieve those goals.

Mr. **Livingston**. I indicate your emphasis on "within the contraints."

Do you believe those contraints are too tight?

Captain **Pfitzenmaier**. Well, it is difficult to accept the restraint of—the preclusion from entering low rate production, when by our judgment and the data we have, the reliability that we have demonstrated up to this point is certainly in line with other weapons of a similar complexity which have entered low rate production.

We show a growth curve in our reliability and we were hopeful last year that we would have been permitted to enter low rate production.

Mr. **Livingston**. In other words, you think the Bigeye is having routine problems in development that any new weapon would have, and that if given the full rate of appropriations for production, you could overcome those problems and that it would be an effective weapon in our arsenal; is that correct?

Captain **Pfitzenmaier**. Yes, that is correct.

Mr. **Livingston**. What is the impact for not adequately funding it, the impact on your overall defense posture?

Captain **Pfitzenmaier**. Without Bigeye we are stripped of our capability to strike at deep targets within enemy territory. We have no weapon that we can appropriately use in that role.

Mr. **Livingston**. Of course, we are in a position in the world where Mr. Quadhafi is producing chemical weapons and is negotiating with certain other powers to get missiles; is that correct?

Captain **Pfitzenmaier**. Yes.

Mr. **Livingston**. We are in a situation where we know that ——— are producing chemical weapons; is that correct?

Captain **Pfitzenmaier**. That is correct.

Mr. **Livingston**. We know that the Soviet Union has massive stockpiles of chemical weaponry, correct?

Captain **Pfitzenmaier**. Yes, sir.

Mr. **Livingston**. And we are in the position of unilaterally tying our own hands and not producing a weapon that you believe would be effective if we produced it?

Captain **Pfitzenmaier**. That is correct. May I comment further?

Mr. **Livingston**. Sure.

Captain **Pfitzenmaier**. It seems that we need to demonstrate the capability to produce a weapon. We are doing that, we are building a facility in Van Nuys, California, at Marquardt to do that. We must build a few weapons within that facility to show capability. We should stockpile at the minimum amount to show our ability to produce a weapon.

Mr. **Livingston**. When you say, "stockpile" we are talking about stockpiling in the sense that we have done over past history, we are talking about stockpiling safe binary weapons that cause no threat or harm to mankind in any way, shape or form; is that correct?

Captain **Pfitzenmaier**. That is correct.

Mr. **Livingston**. Please continue. I understand that the contractor on the 155 binary projectile has experienced some difficulties in manufacturing the plastic canisters; but, that these problems have reportedly been corrected? Is that accurate?

Captain **Pfitzenmaier**. May I defer to Dr. Welch on that?

Dr. **Welch**. That is correct. In our view, and we have reviewed what the Army people have told us, we believe these problems have been overcome.

Mr. **Livingston**. The current status of this program is what?

Dr. **Welch**. The 155 binary projectile is well into production. It has experienced the same kind of difficulties other munitions of that kind have experienced, and it is well underway. I would like to add to what was said about your question on the Bigeye.

There is real threat in the Mideast. It is a ballistic missile, chemical/biological threat. Allies of ours are at risk. Troops that we would have to insert over there to come to the assistance of allies or for hostage rescue or oil protection are at risk, and we are not going to deter Quadhafi with artillery shells or with the multiple-launch rocket system.

We are going to deter him and other with projected power, with aircraft carriers and that means the Bigeye bomb. That is why we need, at least for the interim, the Bigeye bomb as quickly as we can get it.

Both Secretary Carlucci and Secretary Wienberger reviewed the Bigeye and found it ready for low-rate initial production. We continue to maintain that position and believe the circumstances are such that we ought to get into low-rate initial production. Unfortunately, the language of last year prohibits us to go into low-rate initial production.

Mr. **Livingston**. Yes, that language said that the binary bomb could be used only for maintaining program continuity, maintaining subcontractor base and procuring piece parts and components. That is hardly full production and it really hardly seems to be a sufficient answer for the threat that is mounting, not only in the hands of the Soviet Union and in Iran-Iraq, which are hardly stable powers, but in the hands of a madman like Quadhafi.

We have a brand new Secretary of Defense, and I know he is going to be an outstanding one. I hope anybody who has an opportunity to take a message back to him, and I doubt that I have to say this to him since I have served with him on the Intelligence Committee, but I am concerned that we are sitting back and watching while the threat in the hands of Mr. Quadhafi continues to grow

I think it is unwise for us and unwise for the rest of the world.

Why has the Department not requested Bigeye funding for fiscal year 1990, if it believes the program could be ready to proceed to LRIP.

Captain PFITZENMAIER. Low-rate initial production sir. There is only one answer to that. We were specifically excluded from requesting procurement money in fiscal year 1990 as a result of the fiscal year 1989 language. Our hands were tied on that.

Mr. LIVINGSTON. If the committee was to decide to proceed with the program this year, how much money would be needed to include this project in the bill, and what language would we have to adopt? Would you like to submit that for the record?

Captain PFITZENMAIER. I would like to answer part of that.

First of all, I must comment again that in order to answer that question, it would require an alteration of the fiscal year 1989 language for us to appropriate an alternative to you.

Given that an alteration to the language took place, we would require $24 million in addition to the $6.9 million currently in our request for 1990.

Mr. LIVINGSTON. The actual bill language and report language would have to be changed and that would have to be referred to the authorization committee. The committee has heard a lot about the reliability of the system. Could you tell us how the reliability of the Bigeye at its current stage compares with other systems—I think you have done that but if you would like to supplement your remarks for the record.

[CLERK'S NOTE.—Classified insert removed.]

PARIS CONFERENCE ON CHEMICAL WARFARE

Mr. LIVINGSTON. Earlier this year in Paris, 49 nations signed an agreement to ban chemical weapons. Could you inform the committee as to the basics of their agreement for the record, and as to the impact this agreement is likely to have on obtaining a total ban on chemical weapons?

[The information follows:]

The January 1989 Paris Conference on CW use produced a declaration, not an agreement. In the declaration, the participating states:

Affirmed their commitments not to use CW;

Stressed the necessity of concluding, at an early date, a convention on the prohibition of the development, production, stockpiling and use of all CW;

Called on the Conference on Disarmament in Geneva to redouble its efforts to resolve expeditiously the remaining issues;

Expressed their wish for the early completion of the work to strengthen the UN procedures for the investigation of CW use; and

Expressed concern over the growing danger posed to international peace and security by the risk of the use of CW as long as chemical weapons remain and are spread.

MORATORIUM ON CHEMICAL WEAPON PRODUCTION

Mr. LIVINGSTON. Several Members are proposing legislation which will place a two-year moratorium on the production of chemical weapons as a good-faith agreement by the United States to achieving a worldwide ban on chemical production. If you would like to comment on the impact of their legislation if passed, we would be happy to have that also.

Dr. WELCH. I will certainly do that, Congressman.

Mr. LIVINGSTON. Thank you.

[The information follows:]

The proposed legislation would adversely affect both US national security and the chemical weapons (CW) negotiations currently on-going in Geneva. While only the US and the USSR have admitted possession of CW ———. History has demonstrated that CW is only used against nations or groups who do not possess a deterrent capability. Prior to December 1987, following a 19-year moratorium, all of our CW stocks were deteriorating with age and many were obsolete. Their deterrent value was negligible and our retaliatory capability was painfully uncertain. Despite our tabling of a draft treaty in the Conference on Disarmament in 1984, it was only after the US committed itself to the production of binary weapons (in 1987) that the Soviet Union began to show any serious interest in negotiating a CW ban ———.

Mr. MURTHA. We will now turn to demilitarization.

Mr. Owen, do you have a statement?

SUMMARY STATEMENT OF MR. OWEN

Mr. OWEN. Yes, sir, I have a statement I would like to submit for the record, and I would like to begin this afternoon by offering a very brief thumbnail sketch of where the program is over the last year, since we last appeared before this committee.

It has been a year, and during that year, with last year's work on the Hill, the Congress made an important change in the chemical stockpile disposal program. They moved back the deadline that we are faced with in disposing of the chemical weapons to the year 1997, and this was agreed upon. I think the Army, the Defense Department, and the Members of Congress over here all agreed, that that was a better date for us to work for and that is the date we are currently working on. But that is a major change in the program since we were here last year.

I have been joined by General David Nydam, who is the Program Manager for Chemical Demilitarization.

Throughout this program our first and foremost goal was to accomplish this mission as safely as humanly possible. Everything we do, safety is the number one watch word in all that we do, whether it be the systemization of the Johnston Island plant on Johnston Island in the Pacific, the monitoring of our existing stockpile, whatever it may be, safety is first. Also during this past year, we have had a success story to report that we started up and are now well over 70 percent complete with the mission of demilitarizing the munitions and bombs at Pine Bluff Arsenal that contain the agent BZ. That is not a lethal agent, but it was a debilitating agent, and we are 70 percent through that, and it has pretty well gone on schedule.

We will complete that job and will have destroyed all the BZ agent munitions, most of them in bomb form, I believe, by about fall, late fall of 1989, and we will have cleaned up all the ash and trash associated with that operation probably by the spring of 1990. So it is a good success story, and we are proud of it.

With the operation of the BZ plant at Pine Bluff, we were able to gain lessons learned there and we have transferred those out to the Johnston Island baseline lethal stockpile destruction plant over the last year.

Also during the last year, we have finalized designs and are about to begin construction. Funds have been appropriated by the

Congress to construct our central demilitarization training facility, which will be constructed at the Aberdeen Proving Ground in Maryland. That construction is about to get underway. This is where we will bring all the operators, employees of the future demilitarization facilities, they will be brought there first and given extensive training on how to work in this type of environment and trained in the exact job that they are expected to accomplish at their individual facility.

I know there is a great deal of interest in this committee about the status of our Johnston Island facility, JACADS, Johnston Atoll Chemical Agent Destruction System. We are in the process of systematizing that plant, proving it out, acceptance testing on the equipment that has been installed, proving that equipment out, dovetailing it all together into a segregated computer controlled demilitarization facility of plant, and we are here to report today—I know there is a lot of interest in that—that we have revised our estimate as to whether we will be able to begin operational verification testing, OVT, at Johnston Island. That would be with live agent chemical munitions.

We now believe with a very high level of confidence that we are approximately six months behind our original schedule as discussed with this committee last year, and that we now anticipate that we will be able to commence operational verification testing in March of 1990 versus September of 1989. Again, that is live agent operational verification testing.

We continue to plan for approximately 16 months of operational verification testing before we would analyze the results of OVT and then turn the plant on to full-scale destruction operations. This procedure worked out in consultations with the Congress will allow us to, with a great deal of certainty and confidence, if the results of it are what we anticipate they will be, we will then be able to commence operations in the United States and get underway with the construction of our eight demilitarization facilities scattered about the United States from Oregon in the far West to Maryland here in the East. So that is an important test. Everyone is eager to see the results of it—I say eager, not anxious, so we could get underway.

This six month slip at Johnston Island will probably result in several months slippage at Pine Bluff, and Anniston, and Umatilla, the next three CONUS locations where we will begin construction.

We are about to begin construction at Tooele, Utah. Another area is the preparation of site-specific environmental reviews and documentation to allow us to press ahead at the individual sites.

During this past year, we carefully worked an arrangement with the Congress. We recognize that there was an extraordinary amount of public, media and congressional interest in our selections of on-site incineration programs. There was some real concerns and we said let's see if we can find an additional step or procedure to go through that may help put some of those concerns to rest, and that is what we call a "Phase I Review."

We are working with the Argonne National Laboratories out of the University of Chicago and Oak Ridge Laboratories in Tennessee to give us one last hard look at the data we use to arrive at the decision to destroy on-site. If we find any problems there, we have one more chance to correct that. We have done that successfully at Tooele, Utah.

The process did uncover a couple of areas where we had made some miscalculations. We took those back, looked at them very carefully. They had no overall bearing on the outcome of the program at Tooele and they had no impact that would cause us to move away from on-site destruction at Tooele, but they did point out things that we needed to work on a bit more and we have been doing that, such as the precise siting of the plant.

Also, during this past year we have very actively gotten underway and monies are being requested this year, I think about $14 million in the operation and maintenance line and $38 million in the procurement line, to begin our emergency response program which is approximately a $100 million program, a program where the Army working with the FEMA and Department of Health and Human Services and the Environmental Protection Agency are going into the eight sites, identifying what their emergency services infrastructure is, and helping improve that so they could deal with any possible unforeseen accident at one of the plants. Such things as state-of-the-art monitoring equipment in the community, an alert system, state-of-the-art communications for the local police and fire departments, state-of-the-art gas mask equipment for firemen, may be overpressuring some institutional buildings that are within a given range of a plant.

That program is well underway. We have moved $100,000 to each of the eight communities to allow them to hire a person or two to work with us almost full-time. A place like Umatilla, Oregon, is a small community and a very sprawling rural county, so they will probably hire a person or two to work full-time, civil defense type people.

We think that program is well under control. Ultimately we believe we will spend about $100 million there.

During this past year, we have been working a great deal with the congressionally-mandated independent oversight organization. That organization is the National Academy of Sciences' National Research Council. We have identified a number of areas in the program that they would like to look at. Their elite team of engineers have traveled to Johnston Island on a number of occasions and they have identified areas of training, operational verification testing, monitoring of agent, the equipment we use for monitoring, the movement of munitions from igloo to the demilitarization plant and I believe those are the primary areas that they have identified.

That is all I have to say now, Mr. Chairman.

General Nydam and I stand ready to answer any questions you may have.

[The statement of Mr. Owen follows:]

RECORD VERSION

STATEMENT BY

MR. MICHAEL W. OWEN

PRINCIPAL DEPUTY ASSISTANT SECRETARY OF THE ARMY
(INSTALLATIONS AND LOGISTICS)

BEFORE THE

SUBCOMMITTEE ON DEFENSE

COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

MARCH 22, 1989

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE APPROPRIATIONS
COMMITTEE

OPENING STATEMENT FOR THE RECORD

I am Mike Owen, Principal Deputy Assistant Secretary of the Army for Installations and Logistics. I appreciate the opportunity to appear before your Committee this afternoon and discuss with you the current status of the Chemical Demilitarization Program.

When we came before you at this time last year, the Army had just completed the Final Programmatic Environmental Impact Statement (FPEIS) for the program and made the decision to disassemble and incinerate the old lethal unitary chemical weapons at the eight storage installation in the United States. We also provided an Implementation Plan which laid out the schedule and costs for the entire program. At that time, we expressed to you our confidence in the program and the Army's ability to safely and efficiently dispose of the unitary chemical stockpile by 1997.

Last May, we began destroying the incapacitating agent BZ at Pine Bluff Arsenal, Arkansas. I am pleased to inform you that disposal operations have progressed smoothly and to date we have destroyed the entire bulk inventory of BZ and half of the BZ munitions. We will complete destruction of the remaining BZ stocks by the end of this year. The BZ program is going well.

Right now we are evaluating bids and plan to make an award shortly for the construction and operation of the Central Demilitarization Training Facility to be built at Aberdeen Proving Ground, Maryland. This facility will be in operation during the entire life of the disposal program and will provide initial and refresher training for disposal plant personnel. A strong training program is critical to ensuring safe operations.

I am also pleased to report to you the establishment of a national board to facilitate the exchange of information between Federal, State and local agencies involved with the Chemical Demilitarization Program. We have also established local boards at each of the eight disposal sites in the continental United States. We call these groups Intergovernmental Consultation and Coordination Boards or ICCB's. The first meeting of the national ICCB was held last October. Local boards are meeting now. We formed these boards now so that they could participate in the environmental review process. We intend to continue this important interface throughout the life of the program. Based on our interaction to date, we expect local input in two key areas--the site-specific review process and the program to upgrade emergency preparedness and response.

First, let me discuss our site-specific review process. Some Members of Congress were concerned that we did not consider enough site-specific information when we made our decision to destroy the chemical munitions on site at each of the storage installations. To alleviate these concerns, the Army agreed to conduct additional studies at each site and take a fresh look at the on-site decision. Once this is done, we will then be in a position to either validate or reject the environmentally preferred alternative--on-site incineration.

We have just completed the review of the Chemical Demilitarization Program planned at Tooele Army Depot, Utah. We found some interesting things. First, the latest population data showed some significant changes in the number and location of the people living around the disposal site. Second, we discovered we had misread coordinates in siting the plant, indicating it would have been 10 kilometers further south than it should have been. These two factors together caused an increase in the number of people that fall within the precautionary zone (the 100 kilometer radius around the storage area). These are significant findings. However, since the Tooele facility was part of all three alternatives (national, regional, and local disposal options), the change in population data affected each alternative equally. Therefore, these findings did not change our on-site disposal decision.

Based upon these studies and analyses, I am confident that on-site incineration is the best alternative for destroying the chemical stocks at Tooele Army Depot. We recently certified this fact to the Congress. Similar reviews are now under way at Anniston Army Depot, Alabama, and Umatilla Depot Activity, Oregon. Reviews at the remaining five sites: Pine Bluff Arsenal, Arkansas; Pueblo Depot Activity, Colorado; Newport Army Ammunition Plant, Indiana; Aberdeen Proving Ground, Maryland; and Lexington-Blue Grass Army Depot, Kentucky will be completed by January 1991.

Next, let me discuss emergency response. The program to upgrade the emergency response systems at each of the eight storage locations and in the communities surrounding the installations is now well under way. In August, the

Army and the Federal Emergency Management Agency (FEMA) entered into an agreement which outlines the responsibilities of each Agency in the areas of emergency preparedness and emergency response. A Steering Committee was formed to make policy decisions. In addition, the ICCB's referred to earlier also offer an additional forum for discussing emergency response issues.

We are also developing tougher standards and criteria which will be used to measure the adequacy of the existing emergency response programs. The funds--$11.8 million--that have been appropriated so far will be used to purchase equipment, improve training, and upgrade plans at each site to meet the new standards. The State and local communities are key players in this program. Working in cooperation with FEMA, the Army has provided each of the storage states with $100,000 to hire additional personnel at the State and local level to support this important program. Their input and practical knowledge are essential to ensure we implement the best emergency response system available to support both the chemical storage and demilitarization missions. We plan to have the upgraded emergency response system in place by December 1992 and spend about $100 million to complete the total job of upgrading both on and off-post emergency response capabilities.

All eyes are now focused on the Johnston Atoll Chemical Agent Disposal System--commonly called JACADS. This is our first full-scale facility and the place where we will verify the technology, equipment and operating procedures that will be used at the plants in the continental United States. JACADS is based on our most tested and proven technology of disassembling munition components and incinerating them in separate furnaces.

We have accomplished much at Johnston Island during the past year. The remaining process equipment has been installed. The equipment to destroy M55 rockets and bulk containers has been tested and accepted and should be fully proved out using simulants this year. Cadre training (the training of trainers) is complete and the remaining personnel are currently being trained. In short, we are making final preparations to pass a rigorous preoperational safety inspection before we start the 16-month Operational Verification Test or OVT.

Right now, we are several months behind schedule. Frankly, we underestimated the time that it would take to recruit and train skilled workers to work at the isolated island in the South Pacific. We also experienced some nagging problems in isolating and debugging our computer-controlled software and equipment. These problems were compounded by accelerated corrosion of some of the support equipment from ocean salt spray. However, most of our troubles are behind us now, and we are working toward a revised and more realistic schedule. We anticipate a slip of several months. We will provide the date that we plan to start OVT during our oral opening remarks. However, we firmly believe that we are making good progress at Johnston Island, and we remain confident that JACADS can do what is required.

The purpose of the OVT period is to demonstrate how the baseline technology (disassembly and incineration) that we demonstrated at the Chemical Agent Munitions Disposal System works in a full-scale chemical disposal system. To do this, we plan to run four separate tests, each lasting two to four months. We will begin by testing M55 rockets containing the nerve agent GB and follow that with one-ton containers containing mustard, M55 rockets containing the nerve agent VX and then mustard filled projectiles. These live-agent tests will be used to validate the process, operating procedures, environmental and safety aspects of the JACADS. Lessons learned will be applied to the plants in the continental United States.

The bottom line, of course, for all disposal operations is safety. I have asked the National Academy of Sciences' National Research Council (NRC), in their Congressionally-mandated, independent oversight role, to review our operational verification test plan and provide a technical assessment of the test procedures and results. We also will have an independent organization collect, evaluate and package the test data. This effort and the work to be done by the NRC will be funded using a portion of the $5.0 million appropriated in fiscal year 1989 for safety-related issues. Only when I am confident that we have satisfied the stringent set of criteria established for this test will the Army be able to certify to you that the JACADS facility is ready to begin full-scale disposal operations. I will notify you immediately if any additional problems cause a delay in the OVT schedule and any impact that might have on the construction of the facilities to be built in the United States.

A request for proposals was recently issued for the construction, equipment installation, operations, and closure of the first chemical disposal facility in the United States. This facility, which will be built at Tooele Army

Depot, Utah, will be used to destroy 42% of the chemical stockpile. Construction of the Tooele facility is scheduled to begin this June. The lessons learned from the JACADS OVT will be factored into the operating procedures and training at the Tooele plant and equipment will be retrofitted, if necessary. Construction of the remaining disposal facilities is planned for fiscal year 1991 at Anniston Army Depot, Alabama; Pine Bluff Arsenal, Arkansas; and Umatilla Depot Activity, Oregon; and fiscal year 1992 at Aberdeen Proving Ground, Maryland; Lexington Blue-Grass Army Depot, Kentucky; Newport Army Ammunition Plant, Indiana; and Pueblo Depot Activity, Colorado. As previously mentioned, lessons learned at JACADS will be incorporated into the design and operation of these plants prior to any contract award.

Last year this Committee and the Senate Appropriations Committee asked the Army to construct and verify a full-scale cryofracture plant to augment or backup the baseline technology being used at JACADS. For the past few years, we have aggressively pursued the development and testing of the cryofracture process. After comparing costs, schedules and progress at JACADS with the cryofracture program, the Department of Defense reached the conclusion that it was time to focus our resources and efforts on the baseline technology in order to meet the Congressional mandate of destroying our chemical stockpile by 1997. This decision was also based on the conclusion that the disassembly technology is safe, effective and ready to go. Cryofracture is not as mature and therefore requires more developmental and verification testing before it can be used as a production or destruction facility.

I have made plans for the NRC to continue in their oversight role of the Chemical Demilitarization Program. During the past year, members of the NRC Committee on Chemical Disposal visited the JACADS and the Chemical Agent Munitions Disposal System at Tooele Army Depot. Although I have not received a formal report from them as yet, we have, in several meetings, listened to their concerns discussed in the areas of training, monitoring, command and control, and cryofracture. In my opinion, based on informal discussions with the Committee, I can say with confidence that the Army is doing an excellent job in preparing for chemical disposal and the baseline technology we are using is sound. However, it is my understanding that the Committee is concerned with the uncertainties and still to be proven aspects of the cryofracture process. Their specific recommendations will be contained in a formal report to be received shortly. The Congress will receive a copy of this report.

Next year at this time, we will report to you on our OVT at JACADS, the progress we have made in constructing the Central Demilitarization Training Facility and the full-scale disposal facility at Tooele Army Depot, and the results of our site-specific environmental reviews at Anniston Army Depot, Umatilla Depot Activity and Pine Bluff Arsenal. In the meantime, I will keep you informed of any major changes in the program. We appreciate the strong interest and support of the members of this Committee in helping us accomplish the challenging job of disposing of the United States stockpile of unitary chemical agents and munitions.

Mr. Chairman, thank you for the opportunity to make this written statement for the record. Brigadier General Nydam, Program Manager for Chemical Demilitarization, and I will do our best to answer your questions.

JOHNSTON ISLAND CHEMICAL WEAPON DISPOSAL PLANT

Mr. **MURTHA**. We are talking about demilitarization. Mr. McDade?

Mr. **MCDADE**. Just a bit on Johnston Island. The first full-scale disposal plant is on Johnston Island. Last year, it was indicated that all equipment would be installed by August of 1988, and the plant would be checked out or systematized between August 1988 and August 1989. When was the last piece of equipment installed at JACADS?

Mr. **OWEN**. All equipment is on the island in the plant, bolted down and is basically being systemized or provide out today. What we are doing, sir, is we are debugging the computer control system that controls that equipment. Remember, our factories are being operated in an extremely safe environment, a lot of remote control, a lot of overpressurization, extremely complicated ventilation systems, everything is in.

We are working to make it work smoothly so that we will be able to begin the operational verification testing. That is the program systemization, we allow approximately 12 months to accomplish that.

The uniqueness of the plants, the first of their kind built, the largeness and complexity of it, we missed our 12 months. We probably should have allowed more like 18 months for that, and it has come home to roost, and we will have to add that six months to the schedule.

SYSTEMIZATION OF JACADS

Mr. **MCDADE**. So, you think that it was just recently that you finished putting the last piece of equipment in?

General **NYDAM**. Yes. We are systemizing on the rocket line and acceptance testing on the projectile and bulk line.

Mr. **MCDADE**. When did it begin?

General **NYDAM**. We began formally with systemization in February of this year.

Mr. **MCDADE**. When are you going to be completed?

General **NYDAM**. We will be completed with systemization in March of 1990 on the rockets.

Mr. **OWEN**. Total systemization will be complete and ready to go with operational verification in March of 1990.

Mr. **MCDADE**. So operational verification testing will not be done in December 1990 as you expected last year.

Mr. **OWEN**. No, sir. That is new information we are bringing you today.

Mr. **MCDADE**. You are confident with your dates, are you?

Mr. **OWEN**. Yes, sir. We indicated that when we came here today, we would try to be here with the highest level of confidence in that March 1990 date, and we are confident that is when we will be able to begin OVT.

Mr. **MCDADE**. There is always an issue of safety involved. Are you confident that the strategy is safe, and you will have all the information you need to construct it to operate all the other eight plants?

Mr. OWEN. Yes, sir. There will be additional information we will gather as we go through OVT and then full-scale operations. We are making certain we have a system in place that will allow us to transfer that information to our people in the States who are designing and constructing the eight CONUS plants.

I am confident in the safety level. As recently as yesterday, I had the opportunity to meet with a gentleman who, through many years, was President of Exxon Engineering. He worked on the construction of Exxon's petrochemical facilities around the world, and we have asked him, and he has been to Johnston Island to look at that facility.

The one thing that he came back with, he was struck by the—I won't say inordinate, because we have always said we wanted safety to be number one, but the levels of safety in that plant are overwhelming.

He was confident that any other such industrial process plant to do anything, without that much safety redundancy built into it, would have been up and running a good while ago, but we have engineered so much safety into it that it complicates things.

Mr. McDADE. You think that this plant will be your prototype and let you transfer that technology safely to the other eight, is that your testimony?

Mr. OWEN. Yes, sir. I don't want to get bogged down in the use of words like prototype, because we have an R&D test bed pilot plant in Tooele. We hope to clone off of Johnston Island the other eight plants in the United States

Mr. McDADE. You will know how to build the eight in the United States safely?

Mr. OWEN. Yes, sir.

PROGRAM DELAYS AT JACADS

Mr. McDADE. What caused the delay in beginning systemization at JACADS?

Mr. OWEN. A couple of complications. Johnston Island is 800 miles from Honolulu. We had problems getting highly skilled employees, laborers, craftsmen and keeping them there. One thing that drove them away was when they got there, after two weeks they realized they were on a one-square-mile coral spit with nothing to do, and they decided there has to be a better way to earn a living.

So, some of them picked up and left. We have imposed a personal reliability program, it is a program we use for people who are in very secure areas where there is a great deal of danger from chemicals, things like that, a lot of people fail that test.

We have a hard time recruiting the numbers we need sometimes.

Mr. McDADE. You have the right kind of people now doing the right kind of work there?

Mr. OWEN. We think we have overcome the personnel problems, yes, sir. What remains to be done is to continue to work out the bugs in the computer control system. We think we have all the soft problems, the personnel problems resolved, some of the management glitches, our contractors have intensified their management effort on the island.

We believe it is a question of getting those computer controls debugged.

COST IMPACT OF PROGRAM DELAYS

Mr. **McDade**. What has been the impact on the cost, these delays?

Mr. **Owen**. We have discussed a figure of $8 to $9 million recently. That figure looks as though it is high. It may be double—that figure may be twice as high as it should be, but the figure we don't know as of yet is the immediate personnel and double-timing and double-shifting to correct the problem we have there now to get us to March 1990.

We have delayed the program out there, we are six months behind. That means that small island with a big operation on it is going to have to continue to operate with all the operation and maintenance costs associated with that for an additional six months. What that equates to we don't know as of yet.

There will be costs added to that.

Mr. **McDade**. Current ball park is $9 million?

Mr. **Owen**. Our current ball park would be about $5 million for the added double shift to get us to March of 1990. I cannot give you an accurate estimate right now on the cost of operation and maintenance of the island an additional six months. That will be a substantial amount of money. Exactly how much, I am not certain.

TOTAL COST OF JACADS

Mr. **McDade**. Last year, you estimated that the cost of getting JACADS to the operational stage would be $280.8 million, and operating and closure costs were estimated at $219 million. What are your current estimates?

Mr. **Owen**. Those sound as though they are roughly still in the ballpark.

Mr. **McDade**. Supply them for the record.

[The information follows:]

The current estimate to get JACADS to an operational state is $321.1 million. The current estimate to operate and close JACADS is $239.6 million.

TECHNICAL AND SCHEDULE RISK

Mr. **McDade**. As you begin the systemization of JACADS, what do you consider to be the greatest areas of technical and scheduled risk?

Mr. **Owen**. I would think that once we begin the operational verification testing, the thing that we will be striving for and devoting a lot of energies to is getting a good, smooth, efficient throughput rate and getting that up to a level that will allow us to ultimately meet the 1997 deadline and dispose of these.

But that individual plant is not in danger in the 1997 schedule. That is the ultimate goal, to get it to the projected throughputs that we called for in a safe fashion.

Mr. **McDade**. What in the systemization would cause you not to be able to make that March 1990 date, in your opinion?

Mr. **Owen**. Currently—it would be an unforeseen problem. We believe when we came to you with the March 1990 date, we are confident about that. We believe we have it all scoped out and if there is something that caused us to fall off of March of 1990, it would be probably something unforeseen.

Mr. McDADE. You are supposed to certify that the facility is ready to begin full-scale disposal operations?

Mr. OWEN. Yes, sir. We have not reached that point. That will be approximately 16 months after March of 1990. We are in the process, have just finished working on a plan for OVT, the type of data that we will want to get out of that. We are looking at that with the National Academy of Sciences' National Research Council, and we will have an additional independent party contractor review the data as it comes out of the OVT stage.

That will allow us to certify that the system works on Johnston Island and we can move ahead with the plants in CONUS.

MANAGEMENT AT JACADS

Mr. McDADE. If you should happen to have an incident at JACADS, who would be in charge of seeing to it?

Mr. OWEN. Ultimately, there should be and will be one person in charge of responding to an emergency such as that very tight environment, potentially deadly emergency. It will be as scheduled now, when that plant is operational beyond OVT, we are doing what the Congress has told us to do, destroy munitions.

Ultimately, the Commander of the WESTCOM at Honolulu and his chain of command would be responsible for responding to that emergency.

General Nydam's technical people will be on the ground at all times, and ultimately will have the total authority to close the plant down at a moment's notice for any reason.

It cannot restart without general Nydam okaying that, but the responsibility for responding to a potentially disastrous catastrophic situation on the island would be Western Command at Honolulu.

Mr. McDADE. I guess that is the response I expected, and the reason for the question is this: It looks like the lines of authority are very cumbersome. I see you both nodding your heads. Do you agree?

Mr. OWEN. Yes, sir. I was going to say that in my initial response. We have identified that as an area before we go hot, before we got live agent on that island, we need to scrub that very carefully. Get everybody involved and make sure we have the absolute best lines of command available.

Mr. McDADE. Do you have a recommendation? Have you had a chance to discuss it yet? Do you have a recommendation as to what that chain of command should be?

Mr. OWEN. I would not be ready today, sir. We have discussed it, but it would not be good for me to talk off the top of my head at this time.

Mr. McDADE. How long would it take you to make a decision where we would feel comfortable about this chain of command? How long would it take you to do that?

Mr. OWEN. To change the chain of command, to battle that out, I would say within a period of three to six months before live operations on that island, we will have to do it.

Mr. McDADE. Is three months unreasonable——

Mr. Owen. All things considered, I would like to have the better part of six, but three months——

Mr. McDade. How about four?

Mr. Owen. We will report back to you, sir, in four months as to what we think is a more appropriate lash up.

Mr. McDade. I think we all have one common mind here, and we do see there is a bit of a problem. We put a deadline on you that is not unreasonable to you—let's say four months from today.

Mr. Owen. We will be back in four months to report what we think is appropriate.

Mr. McDade. Thank you, Mr. Chairman.

Mr. Murtha. Mr. Dicks?

Mr. Dicks. What is the status on the eight facilities in the United States?

Mr. Owen. We have made the decision in a programmatic final environmental impact statement approximately 14 months ago that we will dispose of the Nation's unitary chemical stockpile at the eight sites where that stockpile is currently stored versus taking the stockpile from the eight sites to two regional facilities, Alabama and Utah, or taking all of it nationwide to one national disposal facility at Tooele, Utah.

We have decided to go with the eight sites——

Mr. Dicks. So you don't have to move it?

Mr. Owen. Yes. Inability to respond to an emergency situation.

Mr. Dicks. None of them are in Washington State, right?

Mr. Owen. No, sir. The closest to you is Umatilla, Oregon——

CHEMICAL WEAPONS IN EUROPE

Mr. Dicks. What are we going to do with the chemical weapons that are in Europe? What happens to them? Where do they go? Can we do the same thing?

Mr. Owen. The plan now is for us to remove the stocks that are currently in the Federal Republic of Germany and ship them to Johnston Island in the Pacific. As of last week, Secretary of State Baker was in Europe, made an announcement that President Bush wished that we look as hard as possible at shooting for a 1990 goal in getting the stocks out of Germany.

That would be ——— ahead of the tentative schedule we are operating under. It will be a tall order to accomplish. There is a lot of work to be done. We are setting up a special task force in the Pentagon to allow us to get that job underway.

Mr. Dicks. Did the Secretary of State confer with you who has the responsibility to see if that is feasible?

Mr. Owen. Yes, sir. We told him it would be tough and he stated that it was a goal, we would try our best to do that——

Mr. Dicks. I think that is absurd. Why do we want to take them out earlier than later? We are still in the same bind where we don't have an arrangement to deploy the new binaries, we are going to take them over once the war started, is that the situation we find ourselves in?

Dr. Welch. Our current plan is to continue manufacturing the 155mm-artillery shells, start that Bigeye but keep them in the States.

Mr. Dicks. So then we take them out of Europe unilaterally?

Dr. Welch. We are taking the unitary round out of Europe, because Congress asked us to destroy the entire existing unitary stocks. We have said for a number of years that the existing stockpile does not represent a credible deterrent.

Third, we are looking——

Mr. Dicks. That was just because you were trying to get the binary.

Dr. Welch. I would never say that. Third, it is very real now, we understand that, that it is a worldwide chemical threat, it is not the Soviet Union, it is really a worldwide thing. We have the option of putting binary munitions all over the place, or trying to get allies and friends to do this, or we can keep a small stockpile in the States that is easily deployable, and we have opted for the second.

Mr. Dicks. So we are going to take out all of our unitary round from Europe?

Dr. Welch. Yes. It is not that large an amount, but yes.

Mr. Dicks. What is the size and number?

Dr. Welch. There are other numbers that we have handed out—it remains classified and sensitive ———.

General Nydam. I don't know.

Mr. Dicks. ———?

Dr. Welch. Yes.

Mr. Dicks. How are you going to take it to Johnston Island?

Mr. Owen. We are planning that now. ———. We will do environmental documentation, an environmental study on moving that material across the oceans, and we will do a supplemental environmental impact statement on the impact of bringing those munitions to Johnston Island.

Mr. Dicks. ———?

Mr. Owen. ———.

Mr. Dicks. Do you have room on Johnston Island to store all the——

Mr. Owen. That is a space management problem, but we believe that we can do some reconfiguration in the existing igloos, and by the time it gets there—wait a minute—we may not destroy enough munitions to make room for it now that we are six months behind on the plant there.

Mr. Dicks. You are not going to move them until you have the capacity at the island?

Mr. Owen. We would not. There is a possibility we would have it stated in our environmental documentation that if the ship were to arrive at the island, and there were some kind of temporary problem where we could not move the munitions onto the island, the ship would wait at the island under tight security.

Mr. Dicks. While you build the facilities?

Mr. Owen. No, sir. It would just be a minor thing. We will basically have the capacity, the storage facilities upgraded and done to whatever we have to do. We don't anticipate big problems there.

Mr. Dicks. How many ships?

Mr. Owen. ———.

Mr. Dicks. Do you think ——— can handle the whole thing?

Mr. Owen. That is the plan right now.

Mr. AuCoin. ———.

Mr. Owen. ———.

Mr. Dicks. We will have to get other countries besides the Germans involved in this, won't we?

Mr. Owen. ———.

Mr. Dicks. Getting it out of Germany to the coast, you are going to have to go through other countries?

Mr. Owen. ———.

Mr. AuCoin. I think Quadhafi will find out about this within one hour——

Mr. Owen. We appreciate the security dilemma, and we are trying to factor that in with the planning. It is going to be a big problem. We will just have to work doubly hard to accomplish it.

Mr. Dicks. Would you have preferred to do it later?

Mr. Owen. Our initial plan was a while later ——— I guess that would have made everything very comfortable and snug on Johnston Island. There would have been empty igloos awaiting the Johnston Island stock, because the plant would have operated longer.

It would have been probably perfect, but our initial look-see at the problem is that we can deal with it.

Mr. Dicks. Where are you going to store the binaries once they are ready to go, before they go to Europe?

Mr. Parker. Pine Bluff Arsenal and Tooele Army Depot for the second group.

Mr. Dicks. Is that the Bigeye?

Mr. Parker. The 155mm-artillery round. The Bigeye will be stored at Tooele and MLRS will be stored at Pine Bluff for one of the components and Tooele Army Depot for the missile rocket.

Mr. Dicks. Thank you, Mr. Chairman.

Mr. Murtha. Mr. AuCoin?

CHEMICAL WEAPONS AT UMATILLA ARMY DEPOT

Mr. AuCoin. Thank you, Mr. Chairman.

Mr. Owen, what is the total projected cost for the chemical demilitarization program for fiscal year 1990 and for the out-years as well?

Mr. Owen. In fiscal year 1990, we are asking for approximately $286 million. That does or does not include emergency response—that does include the emergency response dollars. Fiscal year 1991, $313 million, and then the years thereafter, 1992 would be—1991, according to this figure is $410 million; $562 million in 1992. In 1993, $418 million, and then it gets to be real cheap in 1994, and we are back down to $233 million, up a little bit in 1995 to $298 million, roughly, under the 1997 plan, $231 million in 1996, $265 million in 1997.

Mr. AuCoin. What is the total amount?

Mr. Owen. Just shy of $3 billion, sir.

Mr. AuCoin. I realize that Congress hasn't yet acted on the base closure report, but you must have some projected costs for the chemical demilitarization program at those installations that are recommended for closure or realignment.

Mr. Owen. Yes, sir.

Mr. AuCoin. What installations are on the base closure and realignment list which are involved in the chemical demilitarization program, and what are the associated costs.

Mr. Owen. Two facilities in particular are directly impacted by base closure. The Base Closure Commission specifically recommended, as you know, that we look to a phase-down of the Umatilla operation once chemical demil——

Mr. AuCoin. What is the cost at Umatilla?

Mr. Owen. The chemical demilitarization program at Umatilla, the total amount is approximately $262 million.

Mr. AuCoin. How many other bases have similar programs?

Mr. Owen. Pueblo Army Depot in Pueblo, Colorado; and there is indirect impact at Lexington Blue Grass Army Depot, which is a split activity with a depot at Lexington, Kentucky and Blue Grass, Kentucky. Blue Grass, Kentucky is where the chemicals are, the Base Closure Commission said close Lexington.

There are a few activities that will probably shift to Blue Grass, but there is no impact there, sir.

Mr. AuCoin. I understand the Lexington Blue Grass project cost is $193 million.

Mr. Owen. $186 million is what I am showing here, sir, for the Blue Grass demil operation.

Mr. AuCoin. Did you say there are related costs at Lexington?

Mr. Owen. Not really, sir. There are a few things that we will have to manage a bit differently.

Mr. AuCoin. So, $186 million is the total?

Mr. Owen. Yes, sir, for chemical demil at Blue Grass. I am not talking about figures to effect a base closure——

Mr. AuCoin. I understand. You didn't give me the costs at the Pueblo Depot. The figure I have is $212 million.

Mr. Owen. I show $225 million, sir.

Mr. AuCoin. Would you provide for the record an itemized list of those chemical demilitarization costs at the Umatilla Depot and how that $261 million breaks down?

Mr. Owen. Yes sir.

[The information follows:]

An itemized list of the chemical demilitarization costs at the Umatilla Army Depot follow:

Total Obligational Authority

[In millions of dollars]

Construction	45.5
Equipment	103.5
Proveout and Acceptance	20.3
Operations	85.7
Support	39.9
Closure	5.8
Total	300.7

DESTRUCTION OF INCINERATORS

Mr. AuCoin. I assume that the incinerators are going to be highly contaminated once they have completed their work. Is that correct?

Mr. **Owen**. I would like to ask General Nydam to talk to that, but we——

General **Nydam**. As you know, sir, the program includes the demilitarization of the facilities upon completion of the chemical munition demilitarization, so basically, what we are conceptualizing is kind of a Pac-Man concept where we eat the building and incinerators as we go through the line. They would be contaminated, yes.

Mr. **AuCoin**. What are your plans for the disposal of the incinerators? Can they be decontaminated?

General **Nydam**. Basically, we will decontaminate them by treating them with a decontaminant and feeding them back into another incinerator, so we will be left with one.

Mr. **AuCoin**. What happens to that incinerator?

General **Nydam**. That one will be decontaminated and cut up after the chemical munitions, are completed.

Mr. **AuCoin**. It is going to be decontamined, cut up and then what—left on-site or shipped somewhere else?

General **Nydam**. It will be in metal parts and we ought to be able to sell that as scrap metal like we plan on doing for the munition bodies that are decontaminated.

Mr. **Owen**. The actual incinerator itself, because it is the incinerator and operates under such intense heat conditions, I am told that is about the cleanest thing in the plant.

Mr. **AuCoin**. But aren't you required by law to destroy the incinerators?

Mr. **Owen**. Yes, sir. All eight plants are to be destroyed and eat themselves, Pac-Man or whatever. We believe that, based on all current standards that the Army and HHS uses, we will be able to have scrap metal that is not even low-grade hazardous material, so it doesn't even have to go to a landfill.

The last piece of the last incinerator would be a piece of that scrap metal.

Mr. **AuCoin**. Would that meet EPA standards?

Mr. **Owen**. Right now, it meets the standards.

Mr. **AuCoin**. The condition of that scrap that you are talking about, would it not be at variance with civilian environment standards?

Mr. **Owen**. Not now. The program allows for a substantial amount of scrap metal.

Mr. **AuCoin**. What are you going to do with the scrap? Are you going to leave it behind on the bases, or ship them off somewhere first and leave the base empty?

Mr. **Owen**. Ideally, we would sell the scrap metal to Ford Motor Company, and we could drive it away as an Escort a year later.

Mr. **AuCoin**. There are people in Umatilla, Oregon that would like to, once this thing is cleaned up and becomes surplus, to use this land for industrial development. That is why I want to know if we are going to have a junk heap of scrap metal.

Mr. **Owen**. That site, the way we plan it now, and what the law tells us to do, there will be green grass growing there. We have other environmental programs——

Mr. **AuCoin**. No scrap will be left?

Mr. **Owen**. No, sir.

Mr. **AuCoin**. What do you do with the ash?

Mr. Owen. Actually, the by-product of this process, sir, is salt brine that is dried and that does constitute low-grade hazardous material and would go into an EPA approved low-grade hazardous landfill, wherever that may be, wherever we contract for that to go to.

Mr. AuCoin. Will that be done before the base is closed?

Mr. Owen. Yes, sir.

General Nydam. It is done as the project goes along.

RELATIONSHIP WITH BASE CLOSURE

Mr. AuCoin. The base closure time frame may be shorter than your incineration time frame.

Mr. Owen. Being the Army official responsible for base closure as well, the Base Closure Commission, and I don't have it in front of me, and I haven't read it every night—specified at Pueblo and Umatilla, they recognized that we had a chemical demil mission there.

Therefore, they were allowing us not to make the six-year window on base closure. Basically, what they were doing there, sir, and it is the intent of the Commission and the way we will operate within the Army, is that the chemical demil mission will be 100 percent complete and everything cleaned up before we allow any single piece of Umatilla Depot that is needed for the mission, chemical demil, to go away.

If we need the depot fire truck down there when we haul away the last barrel of salt brine—it will be left there. And the Commission understood that when they prepared their report. That is the reason they put the unique language in about Umatilla and Pueblo.

They recognize that we would have to keep the infrastructure of the depot in place until we had successfully completed the demilitarization.

Mr. AuCoin. The base closure time frame runs out at the end of calendar year 1996.

Mr. Owen. Yes, sir.

Mr. AuCoin. I have been briefed on the program for chemical demilitarization at Umatilla Army Depot, and that work won't be completed until somewhere in calendar 1997. I believe the law requires it be done within that time frame.

Mr. Owen. Yes.

Mr. AuCoin. How can this be reconciled? I don't want that base closed with this work undone. Knowing the budget burden on the Army, I can imagine how high on the priority list a chemical demilitarization is going to be on a closed base.

Mr. Owen. I will try to one more time, and I will certainly provide a more detailed answer for the record, and we will show you those milestone schedules, because we are still working some of those base closures.

The Commission said if it were not for chemical demil at Umatilla, the depot should be closed, but you have chemical demilitarization and that program has a roughly set in concrete schedule. But because of that, we can't get within the six-year window that the law requires for base closure, but we do expect the Army—and there would be no reason for the Army not to take steps today to identify in the six-year window, during the six years, anything that could be closed at Umatilla that doesn't relate to chemical demilitarization.

Mr. AuCoin. What about those parts of the depot that do relate?

Mr. Owen. They will be left there if it takes us 100 years to do chemical demil and operate—that portion of the depot needed to support that will be left there.

Mr. AuCoin. Left there or left open?

Mr. Owen. Left open. The Umatilla Depot and all portions of it required to support chemical demil will remain active to support chemical demilitarization.

Mr. AuCoin. Is that in the base closure law?

Mr. Owen. I don't think Umatilla is specifically addressed in the law, but the Commission was very well aware of Umatilla——

Mr. AuCoin. So there are provisions in the law that would allow a place like Umatilla to remain active because of the chemical demilitarization?

Mr. Owen. Specifically, Umatilla and Pueblo. We went to the Commission and talked very specifically one afternoon, they took chemical demil and talked it.

EMERGENCY RESPONSE AT UMATILLA

Mr. AuCoin. What will be provided in the way of emergency and financial resources for emergency response at a place like Umatilla Army Depot?

Mr. Owen. We currently have a program of approximately $100 million over the next several years. We will have that system in place by 1992. $100 million over the next several years at the eight sites to help local communities get ready for chemical demil from an emergency response standpoint.

We have been working with Umatilla very closely; it is a very cooperative community. For example, though, it is a very sprawling community, and I believe they identified to us that there were evenings in Umatilla County where they did not always have a Sheriff's Deputy actually patrolling the street.

I cannot imagine that we would operate a chemical demil plant in Umatilla, Oregon without ample staffing of the local Sheriff's Department. We will fix that situation working with the local community.

Mr. AuCoin. Will you provide a breakdown of these costs?

Mr. Owen. Yes, sir. We are developing that plan with the Argonne National Laboratories, and working very closely with locals. We will keep you posted as we go through that planning process.

Mr. AuCoin. Thank you, Mr. Chairman.

[The information follows:]

Detailed cost estimates for the emergency response/preparedness programs at each site will be completed in May 1990. By that time, we will have in place new emergency response standards, have completed our technical support studies, and will have finished surveys at each site to determine exactly what is needed to meet these standards.

CRYOFRACTURE APPROACH TO CHEMICAL WEAPON DISPOSAL

Mr. **MURTHA**. Dr. Welch, as you know, we turned down the reprogramming in which you tried to terminate the cryofracture or "freeze and crush" program. In our committee, we try to work out program details with the Department. We stick to our end.

This was an agreement that we made in last year's conference, and we expect you folks to abide by it and spend the funds for the purpose intended. Or we expect you to send a rescission up here for the money. Mr. Miller?

FUTURE USE OF INCINERATORS

Mr. **MILLER**. As I understood, General, you had stated that the plants would be contaminated; and then Mr. Owen, I understood you to say that the incinerator would probably be the cleanest part of the plant.

Am I correct on that?

Mr. **OWEN**. Yes, sir. Our plants, we will treat them as though they are contaminated, by EPA standards, but we will not leave them there. We will not pack our bags and go home until they are spotless and are no longer contaminated, and all that that requires, whatever that may be.

Mr. **MILLER**. In the design of the plant—I know at Johnston Island, you are far along with that—hundreds of millions of dollars would be spent on this.

We have such a problem of removing just plain trash today. It is a terrific problem. Is there any way whatsoever that the plants can be utilized later for incinerating common trash from cities? In other words, is there some way of further utilizing the plants?

Mr. **OWEN**. Congressman, I think technologically speaking, there is no ifs, ands or buts about it. We are building very expensive, state-of-the-art hazardous material incinerators for this program, and they would probably—and in roughly the year 1997, be fully capable from a technical standpoint of incinerating—if you can throw a bomb in there, you could throw an awful lot of other things.

And they should be able to handle it. Right now, as the law was written, the law Congress enacted said that we will destroy all of those plants, we will not leave them standing, and that is what we are planning for today based on that law.

Mr. **MILLER**. Do you think that we should give some fresh thought to changing the law, there seems to be time to do that given the number of years that this is going to take.

Should we change the law in order to somehow decontaminate and then use these plants, which we would have nine of, as I understand——

Mr. **OWEN**. Yes, sir.

Mr. **MILLER**. To dispose of some of the rubbish that we have today?

Mr. **OWEN**. I don't think that is really a decision for the Army to make, sir. If Congress in its collective wisdom decides to change that law, Congress will do that. As it stands now, we in the Army cannot do that legally and don't have the authority to make that decision.

But I think that Congress probably will find itself debating precisely the point that you are stating now in the next several years, before this program is over with.

Congress wrote that law and my civics text tells me that only you can change it.

Mr. MILLER. We can change it. I think that we should take it under consideration at the present time, so that you will not necessarily be making arrangements to dispose of something that could be useful to the general public afterwards.

Mr. OWEN. Yes, sir. We are aware that there is a school of thought developing in Congress, the same type of question that you have asked here today. We really have not devoted tremendous manpower or resources to actually getting into the details of demolishing these plants at this point in time, and it will be a while yet before we start to commit dollars and people to planning the destruction of the plants.

That will be a while yet. But we will—there will come a time, sir, when we will hear what you all are saying, we will look at the law as written, and we will wonder if, as prudent program managers, when do we begin the execution of a plant destruction program?

Mr. MILLER. I have not heard that discussed in the past. It just is a thought. If we have the problem in the future of destroying what we are disposing of day by day, it seems as though we should at least take it into consideration.

And if you have some people that could talk to us about this, I think it would be very helpful.

Mr. OWEN. I think that is the important thing, Congressman, that if this is the thought process that the Congress is going to go through, that we would be eager to come and sit down and talk with those proponents of such a plan on the Hill. Because just to say, leave them there and do it, it is not that simple.

It would not be the Army's desire to instantly stand up and volunteer to be the Nation's hazardous materials disposal site, but we have to look at all things, and what is in the best national interest.

Mr. MILLER. I understand that. If you would have someone in your office contact someone from my office, I would appreciate it very much. Maybe the chairman would be interested in having a hearing on such an item as this, because something should be done so we will know what is going to happen in the years ahead.

Mr. OWEN. If there is going to be a change, we need to know that before we start executing a plant destruction program.

Mr. MILLER. Could you tell me whether conventional munitions could be destroyed in these same plants that will destroy chemical munitions?

Mr. OWEN. I don't know if that exact question has been put to us before, sir. There have been questions raised as to the possible applicability of cryofracture technology to conventional demilitarization of conventional munitions. We are looking at that.

These exact plants, I can't imagine that there is not some aspects of these plants that would not be adoptable to destruction of conventional munitions.

Now, we don't have an indoor closed system to destroy conventional munitions. We have small popping furnaces for small round ammunition. We have to take it to the back-40 and blow it up or burn it. In the out years, we will not be able to environmentally continue to do that. We are not going to get the States to continue to grant us permits to open-detonate large amounts—we need to find a facility or facilities to accomplish that end.

We are actively looking at that now. The Navy attempted to build a plant at Hawthorne, Nevada, the Western area demilitarization facility. It didn't work. It is there now, the Army owns it. About $70 million was spent on it, and it never worked. It has been a number of years ago, and that is water under the bridge, but we have a big white elephant there.

But the thought process was there to find a way in a closed environment to destroy conventional munitions. We have to do that, and we have to be working on that program. With the question you raised, I can't imagine that some part of that process can't be done in these plants if they were still standing.

Mr. **Murtha**. This, of course, would be the late nineties before we get into this procedure?

Mr. **Owen**. We are scheduled to finish the program in 1997. We would be looking at the first plant ready for closure and therefore destruction in 1996. That would be the first year that we would have a plant ready for closure, meaning destruction.

Mr. **Murtha**. It would be the Armed Services Committees who would have to change this language. That is a good idea, Clarence, and we will suggest to them that they ought to take a look at it.

Mr. **Miller**. I am also thinking about those plants that are not yet constructed.

Mr. **Owen**. Only one is constructed. Eight to go.

Mr. **Miller**. Some plant modification may be necessary in the planning stage if they would be utilized for a different purpose six or seven or eight years down the road.

Mr. **Owen**. I hear what you are saying, Congressman. I do believe, though, right now, if we start tampering with these very safe and secure chemical demilitarization plants to allow for an out-year possible conventional demil usage, we could be opening a can of worms.

It would probably be better to look at a retrofit or conversion of the plant once we have finished with the chemicals in it.

General **Nydam**. The schedule that we have developed today is a very, very tight schedule to meet the 1997 date, but it is also, I want to make clear to everybody, very, very doable. The incinerators are not really suitable to trash-type things. What they would be suitable to is other hazardous materials.

At the same time, we would not want to necessarily interfere with this program, it seems to me. We would like to know as early as possible that we would have to make a change, because some of those changes could be designed into and incorporated into the current plants.

So I think if there is any thinking along these lines, it ought to be begun as soon as possible.

Mr. **Owen**. I would agree with that. If the Congress is really seriously thinking about amending that law, the sooner the better. We can't guarantee that we could adapt our plants—overall, that is the kind of information that we would need to know as soon as possible.

Mr. MILLER. It seems a little foolish to spend the money, do the job, tear it down, remove it, and then still have the many problems that we have. It just seems that we should be able to utilize them if possible. You mentioned, General, that you did not think that they could be used to dispose of the common trash that we are talking about, but apparently you had something in mind that they could be used to destroy. Is there something else that could be destroyed in the plants?

General NYDAM. Other hazardous materials that communities or even the Army might have around. One problem that I know is coming up is some of the facilities that are on installations themselves that need decontaminating. It could be applicable for something like that.

Mr. OWEN. If I might add, I am a layman, certainly not a process engineer by any stretch of the imagination—I think if you looked inside of one of these plants, you would initially scratch your head and say that is an expensive way to run the neighborhood garbage through. These are very complex robotics and hydraulics to run a trash heap, but there are a lot of other things out there that are hazardous that would be prone to going through something like that.

I think initially that wouldn't be the best use for the plant.

Mr. MILLER. Very good. Thank you.

Thank you, Mr. Chairman.

Mr. MURTHA. Thank you very much, gentlemen. We have other questions for the record.

The committee will adjourn until 10:30 a.m. tomorrow.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

NEW BINARY SYSTEMS

Question. Dr. Welch, you say in your statement that "we have begun assessing future binary CW systems that can provide improved standoff range, accuracy, and flexibility." We are now producing an artillery projectile and air-delivered bomb, and we are developing a binary chemical warhead for the MLRS. What additional systems are being considered and why?

Answer. For the record, we are not producing an "air-delivered bomb." the BIGEYE bomb is still undergoing operational testing. With the restrictions on production imposed by the 1989 National Defense Authorization Act, the BIGEYE cannot enter production until after operational testing.

The Department of Defense has begun exploring the possibility of developing a follow-on weapon system for the BIGEYE. We would begin fielding it sometime in the late 1990s. We need such a weapon for the same reasons other air delivered weapons are evolving standoff variants. First, improved target area terminal air defenses are constantly making the area more lethal for our attacking aircraft. In addition, we can load a variety of standoff weapons on a single sortie giving it a capability to attack a variety of targets. We can also cover more targets with standoff weapons. For example, if an attacking aircraft has a 300 nautical mile combat radius, standoff weapons could increase its target coverage radius by 200 miles or more. Finally, improvements in guidance sets will allow us to put chemical agent exactly where we need it.

Question. Will these new systems use different agents than are used by the GB-2, the Bigeye, or the MLRS? If so, please explain.

Answer. Yes. The antiprotective chemical agent is different from the class of compounds used in existing weapons. While not as potent as the nerve agents ———.

Question. For the record, provide the fiscal year 1990 and 1991 budget requests for the new binary systems, identifying specific program element numbers.

Answer. The Department of Defense has not submitted a budget request for new binary chemical weapon systems in fiscal years 1990 and 1991. We are developing our operational requirements, and the Joint Staff will coordinate a Mission Need Statement (MNS) in the near future. Once the MNS is completed, we will continue the acquisition process and determine our budget requirements.

BIOLOGICAL WARFARE

Question. What is the United States doing in biological warfare?

Answer. The United States does not have a biological warfare (BW) program. The President renounced BW in November 1969, and all weapons and agents were destroyed. Currently and since then, by Presidential directive, the U.S. has been involved in a purely defensive program. This program is to assure that our military forces are capable of surviving and continuing to fight in a toxic environment. Details of the U.S. Biological Defense Research Program are available in the Final Environmental Impact Statement released on 4 April 1989.

CHEMICAL WEAPONS DISPOSAL

COST

Question. Last year's plan projected fiscal year 1990 and 1991 costs of $347.5 million and $334.7 million respectively, excluding military construction. Why does your budget include only $286.5 million and $313.7 million respectively?

Answer. During the development of the fiscal year 1990/1991 budget, the Department of Defense decided to terminate the cryofracture program. As a result of that decision, the fiscal year 1990 budget was reduced by $55.9 million and the fiscal year 1991 budget by $7.7 million. In doing this, this fiscal year 1990 program was decremented $16.3 (the amount of the available fiscal year 1989 cryofracture funding) and a fiscal year 1989 reprogramming action (to move funds from the Research and Development to the Procurement budget activity) was initiated. That reprogramming action has subsequently been disapproved. The procurement account was further repriced to incorporate the effects of factoring in a learning curve ($5.1 million in fiscal year 1990 and $13.5 million in fiscal year 1991).

Question. The plan also projected fiscal year 1990 and 1991 military construction costs of $27.0 million and $101.1 million respectively. What is actually in the 1990/1991 budget for military construction and why is it different from last year?

Answer. The fiscal year 1990 budget for Military Construction, Army (MCA) does not contain any funding for the Chemical Demilitarization Program. As a result of the DoD decision to terminate the cryofracture program, $27 million was cut from the program. The fiscal year 1991 MCA budget request includes $96.9 million for the construction of chemical disposal facilities at Anniston Army Depot, Pine Bluff Arsenal and Umatilla Depot Activity. The DoD repriced the fiscal year 1991 construction estimates, which were contained in the March plan, because they were not based on site-specific designs but had been extrapolated from the estimates for the Tooele facility.

Question. For the record provide an itemization of your fiscal year 1990 and 1991 military construction budget for chemical weapon disposal.

Answer. The fiscal year 1990 and 1991 construction budget for the Chemical Demilitarization Program is included in the Military Construction, Army budget request. The fiscal year 90/91 request follows:

MILITARY CONSTRUCTION, ARMY

[Total obligation authority in millions of dollars]

	Fiscal year—	
	1990	1991
Anniston Army Depot		34.3
Pine Bluff Arsenal		17.1
Umatilla Depot Activity		45.5
Total		96.9

Question. In the Chemical Stockpile Disposal Program Implementation Plan submitted to Congress last March, the total cost was estimated to be $3,136,200,000. What is your current estimate and why has it changed?

Answer. The total cost of the Chemical Stockpile Disposal Program is currently estimated at $3,021,800,000. Reasons for the changes since March 1988 are as follows:

Implementation Plan	$3,136,200,000
Fiscal year 1989 Congressional increase (safety tasks)	+5,000,000
Repricing of procurement and construction estimates	−75,200,000
Termination of cryofracture program	−122,800,000
Revision to estimates for the JACADS	+60,900,000
Increased installation (depot support requirements)	+17,700,000
Total revised cost	3,021,800,000

Question. Last year's estimate did not include funding prior to fiscal year 1988. What are those costs?

Answer. Fiscal year 1987 and prior year funding for chemical demilitarization totals $916.5 million.

Question. For the three years, the chemical weapon disposal program has been funded as a separate appropriation, except for military construction. What is your opinion as to whether it would be appropriate to fund military construction costs in the chemical weapon disposal appropriation?

Answer. To date, all construction funding for the Chemical Demilitarization Program has been included in the Military Construction, Army (MCA) account. Through past experience, we know that this is a workable arrangement for the program and the Army. The final decision as to where construction funds for the Chemical Demilitarization Program should be funded, however, rests with the Congress. The Department of the Army can continue to execute the program if it is funded in either the MCA or CAMD,D account.

JOHNSTON ISLAND CHEMICAL WEAPON DISPOSAL PLANT

RISKS

Question. As you begin systemization at JACADS, what do you consider to be the areas of greatest technical and schedule risks?

Answer. The greatest technical risk is the scale-up of prototype furnances—the liquid incinerator and deactivation furnace (developed at the Chemical Agent and Munition Disposal System)—which might require additional testing and modifications. The biggest schedule risk is the integration of all the individual pieces of equipment with their interlocks, the computer controls and training.

CERTIFICATION CRITERIA

Question. Mr. Owen, in your statement, you say that "Only when I am confident that we have satisfied the stringent set of criteria established for this test will the Army be able to certify to you that the JACADS facility is ready to begin full-scale disposal operations."

For the record provide a copy of the stringent criteria you have established.

Answer. The JACADS Operational Verification Test (OVT) Plan was prepared by the MITRE Corporation. MITRE is a nonprofit, independent corporation with qualified experts and has the resources to provide an expert, impartial evaluation of JACADS OVT.

The performance of JACADS during OVT will be evaluated with respect to safety, compliance with environmental requirements and productivity. The operating environment for each of these areas is controlled by the standard operating procedures and the rules of its regulatory agencies.

Critical safety, environmental and operational goals and requirements for all JACADS functional areas have been established and are described and quantified in the following tables.

TABLE ES-1
KEY OPERATING PARAMETERS FOR THE JACADS FACILITY

Munition Type Agent Type	M55 Rockets GB	 VX	Ton Containers HD	155mm Projectiles (M110) HD
MECHANICAL PERFORMANCE				
Average throughput at full operating conditions (munitions per hour)	29	24	0.50	83
Average single-shift throughput at full operating conditions (munitions per hour)	30	32	0.70	81
AGENT EXPOSURE				
General Population Exposure, (72 hr. TWA) mg/m^3	0.000003	0.000003	0.0001	0.0001
Maximum agent concentration in areas with unprotected workers, (8 hr. TWA) mg/m^3	0.0001	0.00001	0.003	0.003
ENVIRONMENTAL PROTECTION AND PROCESS PERFORMANCE				
Air				
Incinerator Emissions				
- Particulate matter, mg/dscm, maximum	----------180----------			
- Hydrogen Chloride	1.8 kg/hour or 1% of the hydrogen chloride in the feed to the pollution control equipment, whichever amount is larger.			
- POHC^a removal efficiency, %	----------99.99----------			
- Carbon Monoxide				
-- maximum hourly average, ppm	----------100----------			
— peak, not to exceed 5 minute duration, ppm	----------200----------			

TABLE ES-1
KEY OPERATING PARAMETERS FOR THE JACADS FACILITY (CONCLUDED)

Munition Type Agent Type	M55 Rockets GB	 VX	Ton Containers HD	155mm Projectiles (M110) HD
Air (Concluded)				
Oxygen, percent, minimum				
- Deactivation Furnace	8.6	8.6	N/A	14.1
- Liquid Incinerator	11.0	10.9	10.2	10.2
- Metal Parts Furnace	NA	NA	13.1	10.0
- Dunnage Incinerator	------------------------------13.0------------------------------			
Combined stack emissions, agent, (1 hr. TWA) mg/m^3	0.0003	0.0003	0.03	0.03
Carbon filter stack emissions, agent, (1 hr. TWA) mg/m^3	0.0003	0.0003	0.03	0.03
Water (cooling water)				
Wastewater discharge, daily average, MGD (cooling water)	------------------------------2.6***------------------------------			
Wastewater temperature	---------------35°C daily average, < 15°C change daily***---------------			
Receiving Water Temperature**	----------------------< 1°C change daily***----------------------			
Solid Waste				
Dried Salt	------------------< 10% water; no free liquid------------------			
All furnace waste	---------------------------Certified 5X---------------------------			

Key: N/A = not applicable TWA = time weighted average

*POHCs are the principal organic hazardous constituents which are measured in the stack gases and are used for indicating the efficiency of destruction of the waste. The POHCs are: Deactivation Furnace--Nitroglycerine; Liquid Incinerator--GB; Metal Parts Furnace--HD; and Dunnage Incinerator--GB.

**The receiving water temperature is the temperature of water being drawn from the ocean to be used as cooling water in JACADS equipment.

***Subject to change if the Johnston Atoll NPDES permit is modified.

TABLE ES-2
COMPREHENSIVE PLANT REQUIREMENTS, GOALS, AND INDICATORS

Functional Area	Evaluation Factor	Type
Plant Management		
General effectiveness	Deviations from Standing Operating Procedures	Indicator
	Process interruptions	Indicator
	Delays and omissions of maintenance	Indicator
	Availability of workers	Indicator
	Corrective maintenance time	Indicator
Plant efficiency	Conformance with Standing Operating Procedures	Indicator
	Work force capabilities	Indicator
	Preventive maintenance backlog	Indicator
	Availability of workers	Indicator
Plant Safety		
Safety management	Safety management structure	Indicator
	Conformance with physical safety requirements	Indicator
	Adequacy of safety documentation	Indicator
	Response to safety deficiencies	Indicator
	Safety training program	Indicator
	Safety support systems	Indicator
Chemical safety	Chemical release that could result in exposure of public to agent	Requirement
	Work area agent alarms that exceed work place exposure limits (8-hour basis)	Requirement
	Work area agent alarms (short-term)	Indicator
	Cholinesterase levels	Indicator

TABLE ES-2
COMPREHENSIVE PLANT REQUIREMENTS, GOALS, AND INDICATORS (CONTINUED)

Functional Area	Evaluation Factor	Type
Plant Safety (Concluded)		
Industrial safety	Lost workdays due to accidents	Goal
Critical events not otherwise reported	Small fires causing no injury or agent release	Indicator
	Explosions causing no reportable damage	Indicator
	Unplanned agent release in agent containment area	Indicator
	Abnormal non-agent chemical spills	Indicator
	Unpermitted combustibles, corrosive materials, ignition sources, penetrating objects, or obstacles	Indicator
	Unsafe occurrences such as munition drops, forklift collisions, or violation of speed limits	Indicator
Quality Assurance	Diligent observation and accurate record keeping	Indicator
Environmental Control		
Air emissions	Destruction and removal efficiency of each incinerator/furnace for designated principal organic hazardous constituents	Requirement
	Hydrogen chloride emissions	Requirement
	Particulate emissions	Requirement
	Carbon monoxide emissions	Requirement
	Oxygen content in incinerator/furnace exhaust	Requirement
	Sulfur dioxide and nitrogen dioxide emissions	Indicator

TABLE ES-2
COMPREHENSIVE PLANT REQUIREMENTS, GOALS, AND INDICATORS (CONTINUED)

Functional Area	Evaluation Factor	Type
Environmental Control (Concluded)		
	Incidents of agent releases from stacks and carbon filters below standards	Indicator
	Incidents of agent releases from stacks and carbon filters above standards	Requirement
	Toxic metals in stack gases	Indicator
Water discharge	Average daily flow rate limits	Requirement
	Temperature limits	Requirement
	Acidity limits	Requirement
Solid wastes	Moisture limits in dried salt	Requirement
	No presence of agent	Requirement
	Heavy metals (EP toxicity)	Requirement
Other	Unplanned releases of hazardous waste constituents to air, soil, surface water, or groundwater	Indicator
	Incidents of noncompliance with permits	Indicator
	Incidents of enforcement actions against plant	Indicator
Process Control		
Control room operators	Occurrences of failure to perform functions and duties	Indicator
Control equipment	Equipment failure rates	Indicator
	Plant downtime due to control equipment failure	Indicator

TABLE ES-2
COMPREHENSIVE PLANT REQUIREMENTS, GOALS, AND INDICATORS (CONTINUED)

Functional Area	Evaluation Factor	Type
Laboratory Support and Agent Monitoring		
Quality control sample analyses	Required analyses successfully performed	Goal
Standard agent solutions	Accurate and timely calibrations	Goal
Laboratory instruments	Accurate and timely calibrations of key instruments	Goal
	Periodic calibration of non-critical instruments	Indicator
	Adherence to certification requirements	Indicator
Agent monitors	Accurate and timely performance checks	Goal
Non-agent monitors	Timely calibration and accuracy reports to EPA	Requirement
Laboratory staff	Use of uncertified analysts	Indicator
	Adherence to certification requirements	Requirement
	Adherence to documentation requirements	Requirement
	Performance of required preventive maintenance	Indicator
	Performance when equipment malfunctions	Indicator
General effectiveness	Occurrences and duration when laboratory is in statistical out-of-control status	Indicator
	Occurrences of false positive agent alarms	Indicator
	Laboratory/plant interface	Indicator

TABLE ES-2
COMPREHENSIVE PLANT REQUIREMENTS, GOALS, AND INDICATORS (CONTINUED)

Functional Area	Evaluation Factor	Type
Training		
Course material	Adequacy of content	Indicator
Testing and certification	Adequacy of training records	Indicator
	Adequacy of test scores	Indicator
	Comparison of training records with skill requirements	Indicator
General effectiveness	Safety, environmental, and process failures or other shortfalls due to inadequate primary and refresher training	Indicator
Air Filter/Ventilation		
Performance	Availability	Goal
	Flow rate	Goal
	Pressure gradient	Goal
	Occurrences and duration of plant downtime due to filter problems	Indicator
	Violations of standing operating procedures during carbon change out, inspection, or maintenance	Indicator
Efficiency	Breakthroughs due to faults, saturation, or desorption of agent from charcoal	Indicator
	Occurrences of agent concentrations above the allowable stack concentration level	Indicator
	Abnormalities found during visual inspection	Indicator

TABLE ES-2
COMPREHENSIVE PLANT REQUIREMENTS, GOALS, AND INDICATORS (CONCLUDED)

Functional Area	Evaluation Factor	Type
Protective Clothing and Equipment		
Emergency air	Occurrences of use of emergency air supply	Indicator
	Quantity of air remaining in emergency supply	Indicator
Life support system	Occurrences of malfunctions that force evacuation of workers from toxic areas	Indicator
Protective suit	Occurrences of Multiple Sealing Attempts	Indicator
	Occurrences of Torn or Ripped Suits	Indicator
	Communication Failures	Indicator
Utilities		
Emergency power	Availability	Goal
Life support air	Presence of agent	Requirement
	Carbon monoxide content limit	Requirement
Other JACADS-controlled utilities	Availability	Goal
Utilities not controlled by JACADS	Availability	Indicator

MANAGEMENT AT JACADS

Question. The management and lines of authority at JACADS appear to be cumbersome. Johnston Island is operated by the Defense Nuclear Agency which has an operating contract through the Department of Energy. The Corps of Engineers has administered the construction contracts for JACADS but contracting authority now rests with the Army's Western Command. The program office for chemical weapons disposal at Aberdeen has the technical expertise but has no line responsibility at JACADS. Would you care to comment?

Answer. The current command relationships at Johnston Island appear more cumbersome than they really are. The Commander of the U.S. Army Chemical Activity, Western Command (USACAW), works closely with the Commander, Field Command Defense Nuclear Agency (FCDNA), and the Program Manager for Chemical Demilitarization. The Commander, USACAW, serves as the Contracting Officer's Representative and receives all of his technical direction from the Program Manager for Chemical Demilitarization, who maintains a staff of five personnel on the island.

We hold the Program Manager responsible for the successful proveout and operational verification of JACADS. He makes the tough decisions regarding costs, schedules, operating procedures, and design changes in consultation with the Commander, USACAW, who in turn provides the necessary direction to the JACADS contractor. We are currently reviewing the command and control relationships at Johnston Island and those planned at the eight sites in the continental United States to see if they can be streamlined to provide more centralized direction and decentralized operations. We will report back to the Committee in four months on the results of our review.

Question. Who is in charge if there is an "incident" at JACADS?

Answer. The Commander, U.S. Army Chemical Activity, Western Command (USACAW), is in charge if there is an incident. Naturally, he consults with the Commander, Field Command Defense Nuclear Agency (FCDNA), and the on-island technical representatives from the Program Manager's office to immediately respond to incidents in the plant or the storage area. A centralized command and control facility equipped with necessary communications, sensors, and chemical protective and medical equipment is available to facilitate immediate response actions.

Question. What management arrangement will be used for the other chemcial weapon disposal facilities?

Answer. We are reviewing the entire command and control relationship. The current plan has the demilitarization plant operated by a contractor who receives direction from the Program Manager for Chemical Demilitarization through a small group of technical representatives assigned to each site. Installation commanders will provide logistics, security, safety, and environmental support and will be responsible for preparing the munitions to move to the plant.

CRYOFRACTURE APPROACH TO CHEMICAL WEAPONS DISPOSAL

Question. Last years technical chemical stockpile disposal plan included the construction of a facility to test an alternative technology to chemical weapon disposal. The Committee and the Congress support this plan because the Army told us it was potentially more safe and less expensive. The cryofracture or freeze and crush approach is not funded in the new budget. The Committee recently denied a reprogramming to eliminate freeze and crush funding in fiscal year 1988. What actions have been taken to reinstate this program?

Answer. The Department of Defense does not intend to reinstate the cryofracture program. The program was cancelled based on difficulties with schedules, costs and limitations of the technology. When terminated, it was four years behind the disassembly and incineration technology used in the Johnston Atoll Chemical Agents Disposal Systems (JACADS). Virtually all of the major program decisions regarding design, construction and equipment acquisition and installation will be made for the JACADS clones at the eight CONUS sites before we could complete cryofracture development and testing.

The building and testing of a cryofracture plant would have cost well over $200 million. Assuming no delays due to problems with environmental impact, testing, scheduling, equipment production and safety, it would only operate about seven months or less before all of the chemical munitions were destroyed at Tooele, Utah. In addition, demilitarization buys no increase in warfighting capability. To the DoD, investing in two technologies does not make good economic sense when the disassembly technology shows every sign of meeting or exceeding all requirements.

Even if the cryofracture program had matured at the same pace as the disassembly program, it still would have had additional limitations. First, it cannot handle bulk items (ton containers, bombs and spray tanks) which account for about 65 percent of the unitary stockpile. Second, it requires a cutting system, like the one in JACADS, to handle M55 Rockets. We have about 475,000 rockets at five CONUS sites and Johnston Atoll. Finally, while the two systems use similar incineration, pollution abatement and monitoring technology, the cryofracture system would most likely have worse problems. Instead of the several smaller and more manageable incinerators used by the disassembly process, cryofracture will use one massive rotary kiln to incinerate agent, explosive charges and metal parts simultaneously. We have never tested such a method.

After analyzing all of these factors and recognizing the need to fund other important programs with our limited resources, we decided to terminate the cryofracture program.

Question. Is it your intention to disregard the direction of four Committees of Congress and refuse to spend the $16.3 million appropriated for freeze and crush last year? If so, will you submit a deferral or recision as required by law?

Answer. The Department is still reviewing this issue. We do not plan on requesting a recision.

Question. We know there have been delays at the first baseline or disassembly plant on Johnston Island. Operations with live agents, which were scheduled to start this August, will not begin until a year from now at the earliest. Why does it make sense to stop the research and testing and plant design for the back-up approach at this point in time?

Answer. The schedule delays at Johnston Atoll will not affect the construction schedule for the baseline demilitarization facility at Tooele, Utah and will not extend the schedule completion of the entire program in 1997. As noted by the testimony of the Deputy Assistant Secretary of the Army (Installations & Logistics), the schedule delays at Johnston Atoll are not due to deficiencies with the disassembly technology itself. First, the contractor had difficulty attracting qualified workers for the remote site. Second, the sophisticated computerized safety systems required additional time to be checked out. We are fully confident we will begin live agent testing in March of 1990.

Question. What specific research and testing for the freeze and crush approach, funded in fiscal years 1988 and 1989, will not take place under your proposal?

Answer. All research and testing for using cryofracture—freeze and crush—was stopped last November when the Department of Defense made the decision to withdraw funding. That work would have involved the continuing development of the robotics to unpack chemical munitions and move them through the freeze to the crush process. It also involved improving the press that crushes the munitions and developing cutting systems to try to handle M55 rockets and bulk items like one-ton containers, bombs, and spray tanks. The cutting systems are needed to reduce the size and weight of metal components to be fed into a large rotary kiln incinerator that has yet to be built.

In addition, much work is needed in testing the cryofracture system incineration process. We planned on using the small rotary kiln furnace that is part of our baseline research and test system in the Chemical Agent Munitions Disposal System (CAMDS) at Tooele, Utah, to provide some of the data needed to model the cryofracture incineration process. However, a full-scale rotary kiln furnace is needed to completely evaluate the cryofracture technology.

Question. If the freeze and crush program is reinstated soon, how long would it take to have plans for a full-scale facility completed?

Answer. Under an optimistic schedule, it would take two years to complete the cryofracture development and test work, the required environmental documentation, and the full-scale design package. At best, we would be able to finish constructing and verifying a full-scale cryofracture plant by September 1996 (seven months before all the chemical stocks are scheduled to be destroyed).

Question. Last year you estimated that the total cost of the freeze and crush program would be $112.13 million. What is your current estimate and why has it changed?

Answer. The previous cost estimate of $112 million (constant fiscal year 1988 dollars) was for Research and Development funds to complete cryofracture development and testing for a pilot plant only. We estimate that it would cost $241.7 million to complete a full-scale plant using the same schedule as the pilot plant if we re-started the program by December 1989. This is $12.5 million greater than the original estimate for a full-scale facility.

Question. Provide for the record a funding profile for fiscal year 1990 and beyond if the freeze and crush program is to continue as envisioned in last year's implementation plan.

Answer. The Implementation Plan provided a funding profile for a pilot cryofracture program. We understand that Congress wants to pursue a full-scale program. The funding profile to continue a full-scale cryofracture program (assuming a December 1989 start date) follows:

CRYOFRACTURE

[Total obligational authority in millions of dollars]

	Fiscal year—								
	1990	1991	1992	1993	1994	1995	1996	1997	Total
R&D	10.9	12.4	20.5	74.9	9.3	16.1	24.8	8.6	177.5
MILCON	[1] 3.6		60.6						64.2
Total									241.7

[1] Design.

EMERGENCY RESPONSE PROGRAM

Question. Mr. Owen, your statement mentions the emergency response work you are doing for the chemical weapon disposal program. Since this is a very sensitive undertaking in local communities explain to us in detail what is being done.

Answer. We have started a four-phase program to upgrade the capabilities of the eight storage sites and the local communities to respond to any chemical incident or accident. Phase I work (Apr 87–Sep 89) involves upgrading the existing preparedness plans, establishing a network to complete the tasks in the other phases, and conducting the initial medical training.

The Phase II (Nov 88–Mar 90) effort focuses on developing tough new standards from which to assess the adequacy of emergency response plans; determining equipment and training requirements; and developing new comprehensive plans. This phase also includes several technical studies which will provide essential information to accomplish the remaining phases.

Phase III (May 89–Dec 92) is the comprehensive planning, training and implementation phase in which additional equipment will be procured and additional training will be done to meet the new standards. The interim preparedness plans will be revised to incorporate the new items from the site-specific emergency response concept plan and will be tailored to accommodate weather, terrain, special facilities, and credible events at each site.

Phase IV (Jan 93–Apr 97) is the readiness and maintenance phase where we will maintain refresher training programs, maintain equipment and plans, and conduct practice exercises until the chemical demilitarization mission is completed.

Question. What will be the total cost of the emergency response program?

Answer. We estimate the program will cost about $100 million ($117.3 million in inflated dollars). However, more detailed estimates will be available in May 1990 when new standards will be in place, technical support studies will be done, and surveys will be finished at each site to determine exactly what is needed to meet these standards.

Question. Are these costs included in the implementation plan of last year? If not, why not?

Answer. We included the $100 million estimate in the March 1988 Implementation Plan.

Question. Since an emergency can occur both during storage of these weapons as well as during disposal plant operations, is your emergency response work going ahead now, even before the plants are built?

Answer. Yes. We plan on completing the upgrade of existing emergency response systems for all sites by December 1992—the same time the plant at Tooele Army Depot, Utah, is scheduled to start toxic operations.

Question. Provide for the record, an itemization of the $8 million in fiscal year 1989, the $38.3 million in fiscal year 1990 and the $13.9 million in fiscal year 1991 for emergency response procurement and identify where each item will be located?

Answer. We have not obligated any procurement dollars earmarked for emergency response. We plan to obligate some fiscal year 1989 procurement funds in a few months for equipment to upgrade weather data collection and analyses systems at each of the eight installations. The plan for the remainder of the fiscal year 1989 funds will be finalized once we complete the new standards and criteria work in September 1989. We will then assess the response capability of each site against these standards and allocate the majority of the procurement dollars. This approach will help us achieve an integrated on- and off-site response system with compatible communication, warning, and decision-making subsystems. Details on the total procurement allocations should be available in September 1990.

NATIONAL RESEARCH COUNCIL REVIEW

Question. At the request of Congress, the Army established a panel of the National Research Council to provide an independent review of the chemical weapon disposal program. The panel met for the first time in December 1987. How many other meetings have taken place?

Answer. In response to Congressional direction, the Army contracted with the National Academy of Sciences' National Research Council to perform independent oversight of the Chemical Demilitarization Program. The National Research Council established a Committee to perform this oversight function.

In addition to the December 1987 meeting, the full Committee visited the Johnston Atoll Chemical Disposal System (JACADS) on Johnston Atoll in April 1988, and the Chemical Agent Munitions Disposal System (CAMDS) at Tooele Army Depot in August 1988. The full Committee also met again in December 1988 at the National Academy of Sciences. Information on the program has been exchanged in between meetings.

Question. What specific issues is this panel considering?

Answer. Over the course of the past year the National Research Council has looked at several areas of the Chemical Demilitarization Program including the monitoring of effluents, training of personnel, combustion, command and control, and cryofracture.

Question. Has the Army made any changes to its plan as a result of suggestions or recommendations from this panel?

Answer. To date, the Army has received no reports or formal recommendations from the National Research Council. However, the panel has informally suggested improvements in the area of monitoring of effluents at Johnston Atoll and we have incorporated their suggestions into our program. Also, it is my understanding that the Committee is concerned with the uncertainties and still to be proven aspects of the cryofracture process. Their specific recommendations in this area will be contained in a formal report to be received shortly.

Question. Why have we received no reports from this group?

Answer. To date the National Research Council has not provided any written reports to the Army on the Chemical Demilitarization Program. They are now finalizing two reports, one on the cryofracture program, and the other on command and control which we expect to receive shortly. Once received, copies will be forwarded to the Congress.

Question. When will the first report be submitted?

Answer. The National Research Council has told us that we can expect to receive their first reports in April 1989.

[CLERK'S NOTE.—As of mid-June, no report had been received.]

Question. Will the report make specific recommendations?

Answer. We understand that the reports from the National Research Council will make specific recommendations for the Chemical Demilitarization Program.

FULL-SCALE BASELINE (DISASSEMBLY) FACILITIES AT TOOELE ARMY DEPOT

Question. Last year, military construction funds were appropriated for a full-scale baseline (disassembly) chemical destruction facility at Tooele Army Depot. What is the status of that plant?

Answer. Request for Proposals for the construction, equipment installation, operations and closure of the disposal facility to be built at Tooele Army Depot was released in December 1988. The solicitation period closed in March and an award is expected in July 1989 with construction to follow immediately after contract award.

The Resource Conservation and Recovery Act (RCRA) permit has been prepared and the draft is scheduled to be released for public review in early April 1989 and be followed by public involvement and public meetings in May 1989. The RCRA and the Air permits are scheduled to be issued in June 1989. The site-specific Environmental Impact Statement is also in preparation and is scheduled to be filed in June 1989, with the Record of Decision scheduled for 15 July 1989.

Question. According to last year's implementation plan, construction was to begin in June of this year and continue until December of 1991. After one year of systematization, actual operations were to begin in December of 1992 and be completed in March of 1997. Have these milestones changed? If so, why?

Answer. Only one of the milestones for the Tooele disposal facility has changed since last year's Implementation Plan. Facility construction is now scheduled to begin in July vice June as originally planned to allow for more time for the completion of the environmental documentation.

Question. Why does it take 2½ years to construct and equip this facility?

Answer. The 2½ years to construct and equip this facility is based on experience in constructing plants of similar complexity and size at Pine Bluff Arsenal, Arkansas; and Johnston Island. Several separate facilities are required; i.e., a main demilitarization building, a personnel support building, maintenance monitoring and chemical supply facilities.

Question. We were told last year that the total cost to construct, equip, and operate the plant would be $428.8 million. Has this estimate changed? If so, why?

Answer. The total cost to construct, equip and operate the Tooele facility is currently estimated at $440.6 million. The difference of $11.8 million from the cost reported last year is due to new requirements for installation of infrastructure upgrades and revision of costs to equip and operate the facility.

Question. What management and contracting approach will be used for this facility? What types of contracts will be used?

Answer. The Program Manager for Chemical Demilitarization will provide the overall management for all phases of the program. A single contract will be awarded for the construction, equipment installation, acceptance testing, systemization, operations and closure. This will be a cost-plus-award-fee contract. The major equipment for all sites, including Tooele, will be provided by two separate contracts in order to maximize standardization among all of the U.S. plants and to duplicate the process equipment tested at JACADS in the Operational Verification Test. The incinerators and pollution abatement systems and the control system will be procured by Stearns-Roger Division of United Engineers and Constructors under an existing cost-plus-fixed-fee contract. Other major demilitarization equipment that will be standardized for all U.S. plants will be procured under a cost-plus-award-fee contract to Bechtel International. A systems integration contract will be awarded in Feb 90 to integrate construction and equipment acquisition schedules.

Question. For the record, provide a complete funding profile for this facility, by budget activity.

Answer. The funding profile for the Tooele facility, which includes new requirements for facility upgrades (e.g., $4.8 million in construction requirements not included in the fiscal year 1991 Military Construction, Army Budget), is as follows:

[Inflated dollars in millions]

1988	1989	1990	1991	1992	1993	1994	1995–97	Total
Military Construction	$49.6		$4.8					$54.4
Procurement	81.7	$19.4	14.9	$0.2				116.2
O&M	0.6	0.8	17.0	21.5	$52.0	$54.0	$124.1	270.0
Total	131.9	20.2	36.7	21.7	52.0	54.0	124.1	440.6

ADDITIONAL CHEMICAL WEAPON DISPOSAL FACILITIES

Question. In addition to the chemical weapon disposal facility at Tooele Army Depot, which was funded last year, the Army intends to construct similar facilities at seven other locations where chemical weapons are stored. Last year's implementation plan called for fiscal year 1990 construction funding for Pine Bluff Arsenal, Umatilla Depot and Anniston. However, no military construction funding is included for this program in the budget. What accounts for the change?

Answer. Last year's Implementation Plan called for construction funding for the facilities to be constructed at Pine Bluff Arsenal, Umatilla Depot Activity and Anniston Army Depot to be included in the fiscal year 1991 budget request, not the fiscal year 1990 request. This request ($96.9 million) is included in the fiscal year 1991 Military Construction, Army budget.

Question. What are the current milestones for these three plants?

Answer. The current milestones for these three plants are as follows:

	Pine Bluff Arsenal [1]	Anniston Army Depot	Umatilla Depot activity
Start design	June 1989	September 1989	June 1989.
Complete design	March 1991	March 1991	December 1990.
Start OVT design verification	August 1990	August 1990	August 1990.
Complete OVT design verification	November 1991	November 1991	November 1991.
Award systems contract [2]	September 1991	September 1991	September 1991.
Complete construction	February 1994	February 1994	February 1994.
Complete systemization	February 1995	February 1995	February 1995.
Completed operations	December 1996	April 1997	November 1996.

[1] Pine Bluff Arsenal dates reflect new decision to build a new down-sized Main Demilitarization Building (MDB) in lieu of the original concept of converting the existing Agent BZ facility MDB. Construction period is extended by six months (30 months).

[2] Start site preparation and mobilization.

Question. What is the status of design, environmental, and other work on these plants?

Answer. The concept designs for these plants are complete. The final designs are scheduled to begin in May 1989 for Pine Bluff Arsenal and in June 1989 for Anniston and Umatilla. The environmental permit applications have been prepared and submitted to the Environmental Protection Agency and the states. These permits (Resource Conservation and Recovery Act (RCRA) and Air) are scheduled to be issued prior to the start of construction in September 1991. The site-specific Environmental Impact Statements are also scheduled to be completed prior to construction. These plants will replicate the JACADS and Tooele plants to the maximum extent possible.

Question. The fiscal year 1991 military construction budget includes $34.3 million for Anniston, $17.1 million for Pine Bluff, and $45.3 million for Umatilla. Is this the total construction cost for these facilities? If not, what additional costs are projected?

Answer. The fiscal year 1991 military construction requirements for Anniston and Umatilla demilitarization plants have not changed; however, the approach at Pine Bluff of converting the agent BZ facility to a plant to dispose of the lethal stockpile at Pine Bluff Arsenal is being reassessed at this time. The alternative being considered is to construct a new main demilitarization building that is similar to the JACADS and Tooele plants but reduced in size because projectiles are not included in the Pine Bluff Arsenal stockpile inventory. This alternative would require at least an additional $5 million in military construction funds. In addition, the depots have identified additional requirements to support the disposal operations; i.e., road upgrades for munition handling, protective mask facility upgrades, toxic change house expansion, etc. These costs are estimated at $4,674,000 (fiscal year 1992) for Pine Bluff Arsenal; $3,323,000 (fiscal year 1992) and $3,363,000 (fiscal year 1993) for Anniston; and $494,000 (fiscal year 1993) for Umatilla.

Question. The fiscal year 1990 procurement budget is $136.3 million. How much of this is for each of the three facilities and what specifically will be procured?

Answer. The 1990 procurement budget of $136.3 million is broken out as follows: $83.2 million for emergency response, European retrograde, design and integration, munitions container design and test, equipment acquisition, equipment installation and program management for Tooele Army Depot and the Chemical Demilitarization Training Facility; and $53.1 million for equipment purchases at Pine Bluff Arsenal (PBA), Anniston Army Depot (ANAD) and Umatilla Depot Activity (UMDA).

The fiscal year 1990 procurement budget for Pine Bluff Arsenal, Anniston Army Depot and Umatilla Depot Activity are:

Item	PBA	ANAD	UMDA
Furnace and systems	$8.5	$14.0	$14.0
Controls and instrumentation	12.2		
Disassembly system	1.6	1.4	1.4
Total	22.3	15.4	15.4

Question. For the record, provide a complete, itemized funding profile for Anniston, Pine Bluff and Umatilla, to include all appropriations and budget activities.

Answer. Funding profiles for each facility are as follows:

[In millions of inflated dollars]

	1989	1990	1991	1992	1993	1994	1995–97	Total
Anniston:								
MCA			34.3	3.3	3.4			41.0
Procurement	2.1	18.9	45.3	40.1				106.4
O&M	0.8	1.3	1.1	0.6	35.7	24.1	79.4	143.0
Total	2.9	20.2	80.7	44.0	39.1	24.1	79.4	290.4
Pine Bluff:								
MCA			17.1	4.7				21.8
Procurement	4.6	25.3	22.7	28.1				80.7
O&M	0.7	1.0	0.9	1.8	19.7	40.9	41.1	106.1
Total	5.3	26.3	40.7	34.6	19.7	40.9	41.1	208.6
Umatilla:								
MCA			45.5		0.5			46.0
Procurement	2.1	21.0	46.1	59.3				128.5
O&M	0.9	2.2	1.9	0.6	21.3	24.0	75.3	126.2
Total	3.0	23.2	93.5	59.9	21.8	24.0	75.3	300.7

Question. The final four plants will be located at Pueblo Depot, Newport Army Ammunition Plant, Lexington-Blue Grass Depot, and Aberdeen Proving Ground. What is the status of each of these facilities?

Answer. The final four plants are scheduled to start construction in fiscal year 1992 and do not include Anniston Army Depot which is in the fiscal year 1991 program. The concept designs for these plants are complete. The final designs are scheduled to begin in March 1990. The environmental permit applications for these sites have been prepared and submitted to the Environmental Protection Agency and the states. These permits (Resource Conservation and Recovery Act and Air) are scheduled to be issued prior to the start of construction in June 1992. The site-specific Environmental Impact Statements are also scheduled to be completed prior to construction. The Pueblo Depot Activity (PUDA) and Lexington-Blue Grass Army Depot (LBAD) plants will replicate JACADS and Tooele plants while the Newport Army Ammunition Plant (NAAP) and Aberdeen Proving Ground (APG) plants will replicate the bulk agent process systems of JACADS and Tooele since these sites only have bulk agent in their chemical stockpile. Major milestones for these sites are shown below:

	PUDA	LBAD	NAAP	APG
Start design	March 1990	March 1990	March 1990	March 1990.
Complete design	November 1991	November 1991	November 1991	November 1991.
Start OVT design verification	August 1990	August 1990	August 1990	August 1990.
Complete OVT design verification.	November 1991	November 1991	November 1991	November 1991.
Award systems contract [1]	June 1992	June 1992	June 1992	June 1992.
Complete construction	December 1994	December 1994	May 1994	May 1994.
Complete systemization	December 1995	December 1995	May 1995	May 1995.
Complete operations	April 1997	December 1996	September 1996	September 1996.

[1] Start site preparation and mobilization.

Question. Why was it decided to do these facilities last?

Answer. A primary objective of the Implementation Plan was to sequence the design and construction of the eight continental United States plants and still complete the overall program at the earliest practical date. The program was developed with construction starts in fiscal years 1989, 1991 and 1992 which provided a more manageable program than the simultaneous start of all eight plants to meet a 1994 completion date. The four fiscal year 1992 facilities were scheduled last because they have the shortest operating periods due to the smaller workloads at these sites. Scheduling these sites last provided the earliest overall completion date—April 1997.

Question. For the record, provide the current milestones and funding profiles for each of these facilities.

Answer. The current milestones and funding profiles for these facilities are as follows:

	Pueblo	Lex Blue-Grass	Newport	Aberdeen
Start construction	June 1992	June 1992	June 1992	June 1992.
Complete construction	December 1994	December 1994	May 1994	May 1994.
Complete systemization	December 1995	December 1995	May 1995	May 1995.
Complete operations	April 1997	December 1996	September 1996	September 1996.
Program cost (millions, inflated).	$249.0	$223.3	$125.1	$141.1.

Question. The fiscal year 1990/1991 procurement budget assumes the use of funds previously appropriated for cryofracture research for the baseline program. If the cryofracture program proceeds as directed by Congress, by how much will your fiscal year 1990/1991 budget be deficient?

Answer. The fiscal year 1990 budget will be short $16.3 million—the funds that were disapproved by the Congress in the fiscal year 1989 reprogramming request for the Chemical Agents and Munitions Destruction, Defense (CAMD,D) appropriation. Fiscal year 1988 funds appropriated in the Procurement account of the CAMD,D appropriation have already been reallocated to support the acquisition of equipment for the continental United States facilities.

Question. What specific items will not be procured in each fiscal year if the funds are not appropriated?

Answer. As a result of Congressional disappproval of the fiscal year 1989 reprogramming request, all fiscal year 1990 equipment acquisition for Pine Bluff Arsenal will be deferred.

Question. Have any fiscal year 1988 cryofracture funds been reprogrammed to baseline to date? If so, please explain.

Answer. In order to keep the Chemical Demilitarization Program on track to meet the 1997 statutory completion date, fiscal year 1988 Chemical Agents and Munitions Destruction, Defense funds, appropriated in the Procurement budget activity for cryofracture, have been reallocated to procure equipment for the baseline facilities. This action was necessitated by the DoD decision to terminate the cryofracture program and reprice the fiscal year 1990 CAMD,D procurement budget activity. We documented this action in our fiscal year 1990 budget submission.

BIGEYE BINARY CHEMICAL BOMB

Question. The fiscal year 1989 Authorization Act stipulated that the $15 million provided for the Bigeye binary chemical bomb could be used for "maintaining program continuity, maintaining the subcontractor base, and procuring piece parts and components." What does the Navy propose to do with the $15 million appropriated for the current year? What specific contracts have been awarded or are intended to be awarded?

Answer. The fiscal year 1989 funding will be required to cover the program support costs and test costs in fiscal years 1989 and 1990. The funds will be allocated as follows:

[In millions of dollars]

Operational Testing IIC	6.0
Fill/Close Test Weapons	0.5
Chamber Tests (Toxic Agent)	2.5
Government Engineering Support	5.0
Contractor Engineering Support	1.0

To date, the only contract awarded for the Bigeye Program is the fiscal year 1987 test weapon contract to Marquardt Company. Any funding provided to the contractor will be as an add on to the existing contract. We do not intend to award any further contracts until mid-fiscal year 1990 for the safe separation test vehicles.

Question. Will the $15 million be sufficient to maintain program continuity and the subcontractor base as intended? If not, what is the impact?

Answer. The $15 million is sufficient to maintain program continuity and complete the OT–IIC test program. Because of the limitations contained in the Fiscal Year 1989 Authorization Act only a small quantity of hardware could be procured. Therefore, the contractor will have a stand-down period between the end of the deliveries for the current test weapon contract and any follow-on contract.

Question. Last year's Authorization Act also provided that prior year Bigeye funds which were not needed for producing bombs for follow-on operational testing could also be used for maintaining program continuity. What are your intentions in this regard?

Answer. We are complying with the language in the Authorization Act. The number of weapons being procured under the current metal parts contract have been reduced to the minimum necessary to support the mandated test program. Any funds not required for the test program will be used to support program continuity.

Question. How many production configuration Bigeye bombs are being produced for follow-on operational testing and at what cost?

Answer. A total of ——— production configured weapons are being procured for operational testing. Additionally, to support other test objectives ——— production configured weapons are being procured for the live agent chamber tests ———training weapons are being obtained to support the operational test, and ——— safe separation test vehicles are being procured to initiate aircraft flight certification.

Question. When $35 million was appropriated for Bigeye in fiscal year 1987, we were told it would procure ——— bombs. A year ago, we were told that it would procure only ——— bombs. The funds are now to be used to procure only ——— bombs. How do you account for further cost growth this year and how can the Committee have confidence that your Bigeye cost estimates are accurate?

Answer. The initial program using fiscal year 1987 funds did include plans to procure ——— weapons. This quantity was based on a proposal to combine the fiscal year 1987 funds into one low rate initial production contract for a total of ——— weapons. Language contained in the Fiscal Year 1987 Appropriations Act prevented obligation of the fiscal year 1987 funds until fiscal year 1988. When Congress zeroed the fiscal year 1988 funding the fiscal year 1987 buy became a stand alone contract. As a result of this, the weapon unit cost increased and support costs for fiscal year 1988 had to be funded with fiscal year 1987 money. Additionally, the decision was made to fund a production transition program to qualify producers for three of the critical Bigeye components prior to building weapons. These adjustments reduced the low rate initial production quantity to ———. The reduction to ——— was taken in response to the fiscal year 1989 Congressional action which mandated procurement of weapons for test only. The funds not required for the testing program will be used for program continuity.

Question. When is follow-on operational testing scheduled to take place?

Answer. Current plans are for additional operational testing to start in February 1990 with completion in September 1990.

Question. Has a Test and Evaluation Master Plan been developed and approved for the Bigeye follow-on operational test? If not, when will it be?

Answer. An updated Test and evaluation Master Plan is expected to be approved by July 1989.

Question. The General Accounting Office (GAO) is required to certify to Congress that all requirements are met in Bigeye follow-on operational tests. What role is the GAO playing in developing the test plan and participating in the tests?

Answer. The GAO declined to participate in the test planning working group developing the Test and Evaluation Master Plan. GAO's participation in the actual testing will be mutually arranged by the testers and the GAO.

Question. Production facilities for Bigeye metal parts, for the QL chemical for Bigeye, and for filling the Bigeye are currently under construction, What are the milestones for completion of construction, installation of equipment, prove out of equipment, and ready for production for each of these facilities?

Answer. The milestones are as follows:

	QLPF [1]	BFCF [1]	MPPF [1]
Completion of Construction	1/90	11/88	3/89
Installation of Equipment	1/90	10/89	6/89
Prove Out of Equipment	2/90	2/90	8/89
Ready for Production	3/90	3/90	10/89

[1] QLPE—QL Production Facility; BFCF—Bigeye Fill/Close Facility; MPPF—Metal Parts Production Facility.

Question. How many of the bombs to be produced for follow-on operation tests will be manufactured in the production facilities noted above?

Answer. All bombs produced under the current contract will be manufactured in the production facilities mentioned above.

Question. The budget includes $6.9 million for the Air Force to procure safe separation test vehicles. How many will be procured and why does the Navy not require such items?

Answer. The Air Force plans to procure 250 safe separation test vehicles in fiscal year 1990 for aircraft certification and ballistics data. This will provide sufficient test units to satisfy Air Force documented needs for certification of all remaining Air Force delivery aircraft identified to carry Bigeye. The Navy will require some of these units but they will not be ordered until planing documentation is available to quantify the requirement.

Question. Will the proposed procurement funding level in fiscal year 1990 allow for program continuity? If not what is the impact?

Answer. The proposed procurement funding level will allow for program continuity by providing funds to the contractor to keep a warm production base in anticipation of the award of a full production contract in fiscal year 1991.

BINARY CHEMICAL WARHEAD FOR MLRS

Question. The Army is developing a chemical warhead for the Multiple Launch Rocket System. Last year we were told that initial procurement funding would be budgeted in Fiscal Year 1992. How much is included in your Fiscal Year 1992 procurement budget for Binary MLRS and for what purpose?

Answer. ——— is programmed in FY 1992 to procure ——— Binary MLRS rockets.

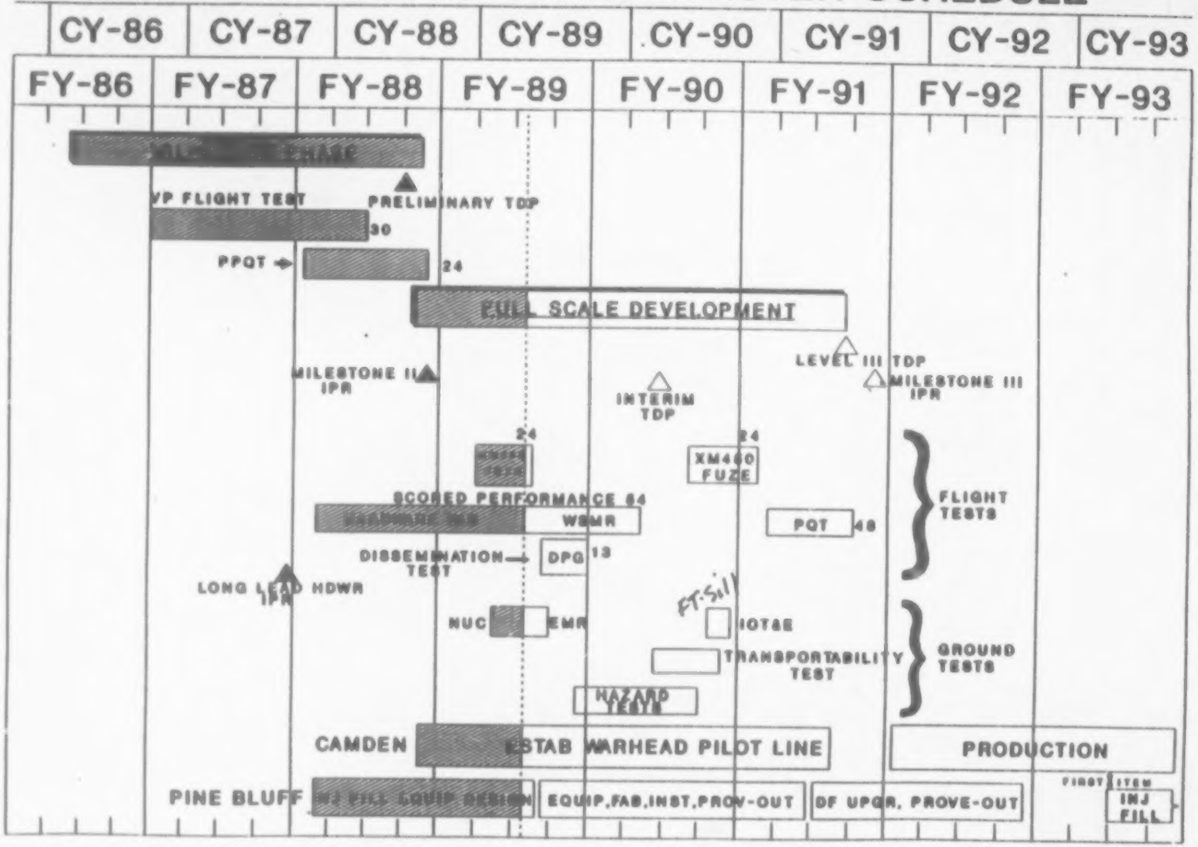
Question. Last year we were told that 67 dissemination and scored performance flight tests would occur between April 1989 and Janaury 1990. In addition 48 production qualification flight tests would occur between Dec 1990 and June 1991. What are your current plans?

Answer. Current Binary MLRS flight test plans are unchanged from last year and are on schedule.

Question. What are the current milestones for Binary MLRS?

Answer. The following contains the milestone schedule.

MLRS BCW ACQUISITION MASTER SCHEDULE



TIME LINE: APRIL 18, 1989
CREATED: APRIL 4, 1989

Question. Last year Congress denied $16.6 million which was budgeted for an initial production facility for Binary MLRS in the belief that it was premature. What are your current plans in this regard?

Answer. During the FY 1989 authorization process, Congress directed that the Binary MLRS Injector Fill and Close facility be pursued as a preproduction/pilot facility rather than a full production facility and authorized $12 million RDT&E for this purpose. The $12 million RDT&E was not appropriated and there was no prejudicial language in the FY 1989 Appropriations Act. $4.5 million military contruction was authorized and appropriated for the building to house the Fill and Close facility. Currently a contract for construction of the building has been awarded. The design of process equipment will be completed in May 1989 and sources of funding for the minimum essential equipment for the pre-production line are being explored.

Question. What is the Army's procurement strategy for Binary MLRS?

Answer. The Army is studying the feasibility of competitive procurement for all or part of the Binary MLRS production hardware.

CHEMICAL WARFARE DEFENSIVE EQUIPMENT

Question. In addition to the Soviet Union, several other countries are known, or suspected, to have a chemical warfare capability. These include several potentially hostile Third World nations which have demonstrated the willingness to use chemical weapons.

Given the types of US forces expected in the Middle East under certain scenarios, what if any, enhancement to their chemical warfare defense training and equipment is provided?

Is this enhancement considered sufficient, and how can we be so assured?

Answer. Operational commanders with responsibilities in the Middle East are aware of the growing nature of the CW threat. Each command has assessed the threat and taken appropriate measures to prepare forces for operations in the region. Forces that reinforce operational commands under appropriate directives and plans, also share the responsibility to ensure their forces can conduct sustained operations within their area of operational responsibility, under all military conditions.

The growing threat has provided the impetus to modify the planning for deployments in the Middle East. ———.

The operational posture which includes increased awareness and focus on the CW threat coupled with training and equipping the participating forces is sufficient to *protect* US forces from the current delivery systems in the region. However, chemical defense alone is not sufficient to deter chemical attack against our forces. We need a strong retaliatory capability for that.

Programmed upgrades in individual protective equipment, detection and identification equipment, improved decontamination equipment and shipboard collective protection are essential to long-term US operations in the Middle East.

The belligerent Middle East countries with emerging ballistic missile capabilities pose a significant threat to US forces. ———.

Question. According to the Committee's investigative staff, the Office of the Secretary of Defense and the Office of the Joint Chiefs of Staff provide broad guidance and objectives regarding chemical warfare issues, but appear to exercise little to no active follow-up to insure Service compliance.

Please describe your system for the management of the research, development, and acquisition of chemical protective and defensive equipment for U.S. forces, and also how you coordinate the individual efforts of the Services?

Answer. The Office of the Secretary of Defense (OSD) and the Joint Staff use two primary methods to monitor Service compliance: the Planning, Programming and Budgeting System (PPBS) and a variety of joint oversight councils.

Within the PPBS, the OSD and the Joint Staff have an opportunity to review each Service's chemical and biological defense program twice each year. When the Services submit their Program Objective Memoranda (POM), personnel from the Office of the Assistant to the Secretary of Defense (Atomic Energy), the Office of the Assistant Secretary of Defense (Program Analysis and Evaluation) and the Joint Staff will review the POMs to ensure the Services are fulfilling the long term goals and mid-term objectives (MTOs) of the Defense Guidance (DG). They then tailor the POMs, if needed.

When the Service Budget Estimate Submissions are received, we repeat the process once again. The final result is a President's Budget designed to help the DOD meet the DG MTOs within the fiscal constraints imposed.

The OSD and the Joint Staff also employ a variety of joint councils to control individual Service efforts for chemical warfare issues. The Defense Acquisition Board (DAB) Nuclear/Chemical Committee is chaired by the Assistant to the Secretary of Defense (Atomic Energy). It has authority to review programs and make recommendations to the entire DAB and the Secretary or Deputy Secretary of Defense. Also within OSD we have the Chemical Warfare Steering Committee composed of flag officers and civilian equivalents from the Services, Joint Staff, OSD and Defense Agencies. It reviews chemical warfare issues and policy and makes recommendations to the Assistant to the Secretary of Defense (Atomic Energy).

The Joint Requirements Oversight Council (JROC), under the auspices of the Joint Staff, reviews CINC and Service operational requirements and recommends joint requirements wherever possible. The Joint Service Review Group reviews individual Service RDT&E programs, assigns lead Service responsibilities and recommends programs for cooperative or joint procurement. The Joint Logistics Commanders, composed of the four-star Service logistics chiefs, reviews equipment and materiel issues directly related to force readiness and sustainability.

Question. The current Defense Guidance directs the Services to attain certain specific chemical warfare defense capabilities between FY 1990 and FY 1994.

For the record, please provide a list of these requirements in priority order, with an estimated cost and date to achieve Initial Operating Capability.

Answer. The Defense Guidance (DG) provides a broad long term goal and Mid-Term Objectives (MTOs) for chemical warfare defense. The long term goal is to achieve a capability to ——— days in a contaminated environment with minimal degradation ———. Obviously, we cannot achieve that goal within the current Five Year Defense Plan (FYDP), so we adopted a variety of MTOs. The MTOs transmit the desires of the Secretary of Defense to the CINCs and Services. He relies on them to use that guidance to field the most capable force possible. The MOTs provide general direction for the CINCs and Services.

Chemical defense systems are completely interdependent. For example, giving our forces ten days worth of masks and overgarments is futile if we do not provide enough collective protection (filtered shelters) for their rest and relief. We also need decontamination systems and detectors. Some MTOs have only one program element (PE) supporting them while others may have several PEs. Many PEs support more than one MTO. Therefore, we cannot provide the cost of implementing individual MTOs.

Because the MTOs are so interdependent, we have intentionally not prioritized them. Each CINC faces a different chemical challenge and has different types of forces under his command. The Service programs are therefore tailored to provide the best possible training and equipment to support each CINC's requirements.

The following unprioritized list includes all of the chemical defense MTOs. ———.

Question. It is the Committee's understanding that Chemical Warfare (CW) defensive capability is not a required reporting parameter in determining a unit's combat level rating (C-Level).

Is that accurate?

If so, why are Chemical Warfare defensive capability not part of the combat readiness rating?

Is there any current consideration being given to amending the requirements so that CW defense capabilities are included for units either in, or tasked to, CW high threat areas?

Answer. The Committee's assessment is not totally accurate.

In the Army both subjective and quantitative assessments are included in Army Regulation 220-1 on Unit Status Reporting (USR). The unit commander is required to report on the percent of his unit which is MOS qualified. MOS qualification criteria include proficiency in specific NBC defense tasks. The unit commander is required to include NBC training status in subjective evaluation of the training status of his unit. Critical NBC defense equipment is required to be reported in the equipment-on-hand section of the USR. Shortages, if the units have not obtained their directed level of equipment on-hand, are required to be specifically addressed in the remarks section of the USR. Finally, commanders report an overall fill of all MTOE/TDA authorized NBC defense equipment along with critical shortages in the remarks section. Overall, the Army Unit Status Report contains adequate information to assist commanders and the readiness, resource and training managers to evaluate the current situation and to take corrective action.

In the Air Force, a different situation exists. Since the early 1980s, chemical warfare defense (CWD) equipment (protective suits) has been included in the reports submitted to higher headquarters as part of the joint reporting system. However, how the Air Force reports this information has changed.

Originally, the CWD equipment was given equal weight with such combat essential equipment as aircraft in determining unit status. After examination of this practice, the major commands and HQ US Air Force determined the CWD equipment artificially depressed the reported units' overall status, masking the units' primary mission capabilities. As a result, the Air Force changed the reporting system so units now describe their CWD assests in the descriptive commentary section of the reports. For management purposes, units report as support equipment the number of CWD equipment bags authorized and on hand. Each bag contains a specified number of protective suits.

The Air Force is not planning to reinstate CWD equipment as a determinant of a unit's overall C-level. This position is consistent with the generally improved equipage status of units and ongoing efforts to decentralize management of individual protective equipment. Nonetheless, the Air Force is reviewing the reporting mechanism to determine if there are ways to increase the utility of the reported CWD equipment status information to the major commands, HQ US Air Force, the Joint Chiefs of Staff, and supported unified commanders. Additionally, the Air Force is reviewing distribution practices to ensure in-theater and early deploying units receive the necessary priority.

Question. Dr. Welch in your statement you indicate that during the on-going DoD budget scrub, "we expect minor cuts in procurement of defensive equipment."

What do you expect the size of these "minor cuts" to be?

What procurement programs would be most affected by these cuts?

Answer. The entire DoD budget is undergoing an intensive internal review. Until the Secretary of Defense determines which mission areas can be reduced, we will have no idea as to the magnitude of the cuts nor the procurement programs affected. However, this office is doing everything it can to maintain a credible and effective deterrent posture.

Question. The Army budget for procurement of chemical/biological defensive equipment in FY 1990 is $142.7 million, a considerable increase over the FY 1989 level of $20.3 million.

What are the driving factors behind this relatively large increase in procurement funding?

Will procurement funding be sustained at this new level in following budget years?

Answer. The FY 1990 request is actually $135.2 million instead of $142.7 million; nevertheless, the FY 1989 level is extraordinarily low. Chemical/biological (CB) defensive equipment not being procured from FY 1989 appropriations but being requested in the FY 1990 budget are the Nuclear Biological Chemical Reconnaissance System (NBCRS), the Chemical Agent Monitor (CAM), and protective masks. These procurements account for approximately $100 million of the increase. The improved defensive capability provided by this equipment is significant. Our current CB detection and warning systems are inadequate to permit sustained operations on a contaminated battlefield. This funding level will increase in the near term as additional first time defensive equipment is added to the inventory to counter the proliferating CB threat.

Question. The Air Force budget for procurement of chemical/biological defensive equipment is $70.5 million. This is a decline of over 30% from the fiscal year 1988 level.

How significantly was the budget request reduced in the initial scrub by OMB?

Provide for the record the specific items and funding levels that were affected by this scrub.

Answer. The original Air Force budget submission for FY 1990 was near the FY 1988 level of approximately $102 million. However, two factors lead to the reduced budget request.

First, HQ Pacific Air Forces (PACAF) elected to reduce their purchase of the Survivable Collective Protective System (SCPS-2) pending a reassessment of the PACAF operational concept for NBC defense. This reduced the request by about $16 million.

Second, during the combined OSD/OMB budget review, the Department imposed about $13 million in undistributed cuts to the Air Force defensive programs due to historically low obligation rates. Due to extended delivery lead times and developmental delays, the Air Force elected to take these cuts in detection and warning systems and in the Transportable Collective Protection System.

[CLERK'S NOTE.—End of questions submitted for the record.]

THURSDAY, MARCH 16, 1989.

AIRCRAFT PROCUREMENT, ARMY

WITNESS

MAJ. GEN. THOMAS D. REESE, DEPUTY FOR SYSTEMS MANAGEMENT, OFFICE OF THE ASSISTANT SECRETARY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION

INTRODUCTION

Mr. MURTHA. The Committee will come to order. This afternoon, the Committee considers the $3,267,500,000 budget request for the Aircraft Procurement, Army appropriation. The fiscal year 1990 budget is a 13 percent increase over the $2,883,700,000 appropriated by Congress in fiscal year 1989. The budget funds continuation of procurement for the AH-64 Apache, the UH-60 Black Hawk, modifications of the CH-47 Chinook, Special Operations Forces modifications, and the Army Helicopter Improvement Program (AHIP).

The principal witness is Major General Thomas D. Reese, Deputy for Systems Management, Office of the Assistant Secretary for Research, Development, and Acquisition. General Reese, we welcome you in your first appearance before the Committee. Your statement and biography will be made a part of the record. You may now summarize your statement and then we will proceed to questions.

SUMMARY STATEMENT OF GENERAL REESE

General REESE. Very well, sir.

Thank you, Mr. Chairman. It is a pleasure for me to be here. I want to start by introducing the gentleman on my left, Lieutenant Colonel Robert C. Atwell, the Chief of Maneuver Systems Directorate, which oversees aircraft procurement in my organization.

The heart of this budget request is the continued support of the Army Aviation Modernization Plan briefed to you for the first time last year. We continue the development of LHX, the production of AH-64, Apache, and the UH-60, Black Hawk, and we continue the modernization efforts on the OH-58 and the CH-47. Special operations aircraft will be built and our improvement of Special Electronic Mission Aircraft—SEMA—will continue.

We fund other aviation support programs. We protect our aviation investment with essential modifications, and we retire older aircraft from the fleet. All of this is done within a level funding concept of about $3.5 billion a year.

For both fiscal year 1990 and fiscal year 1991, the aviation appropriation comprises 22 percent of total Army procurement dollars in this budget request. In fiscal year 1990, this amounts to $3,267.5 million while the fiscal year 1991 request totals $3,377.3 million.

This funding provides for the continued procurement of both the Apache and Black Hawk at rates of 72 per year with a force modernization goal of 975 Apaches and 2,253 Black Hawks. We plan for Apache to begin a four-year multiyear in fiscal year 1990. While Black Hawk completes its third multiyear in 1991. The modernization of the CH–47 continues at 48 per year towards our goal of 472. Its final three-year multiyear begins in fiscal year 1990.

OH–58Ds are programmed at 36 per year with incorporation of air-to-air Stinger starting this year. Special operations aircraft procurement in fiscal year 1990–91 will result in 22 MH–60Ks and, with one additional year, 51 MH–47Es. SEMA dollars will continue modernization efforts for OV–1, will procure additional Guardrail common sensor aircraft, and will fund the Grisly Hunter program.

Mr. Chairman, we appreciate very much your interest in and support of these Army aviation programs. With continued support of this committee, we are confident that we can meet the goals of the Army Aviation Modernization Plan. I am prepared to address your questions at this time.

Mr. MURTHA. Thank you, General Reese.

[The biographical sketch and statement of General Reese follow:]

Thomas Dixon Reese

Deputy for Systems Management

Office, Assistant Secretary of the Army
(Research, Development and Acquisition)

Major General

Duties Statement:

The Deputy for Systems Management is responsible for executive program management oversight and implementation of acquisition policy for aviation, missiles, ground combat, intelligence/electronic warfare, and special operations forces acquisition programs. He is the direct link between the Army Acquisition Executive (AAE) and assigned program PEOs and provides guidance, assistance, and direction to include OSD and Congressional interface.

Qualification Summary:

a. Birth date - 20 April 1935
b. Regular Army
c. Education/Special Qualifications:
1957 - B.S., Oklahoma State University
1977 - M.S., Shippensburg State University
1970 - U.S. Army Command and General Staff College
1977 - U.S. Army War College
Awards and Decorations: Distinguished Service Medal, Legion of Merit, Bronze Star (2OLC), Meritorious Service Medal (1OLC), Air Medal, Army Commendation Medal, Army General Staff Identification Badge
Experience:
1988 - Present - Deputy for Systems Management, OASA(RDA)
1986 - 1988 - Commanding General, U.S. Army Missile Command, Redstone Arsenal, Alabama
1985 - 1986 - Assistant Division Commander (Maneuver), 5th Infantry Division, Ft. Polk, Louisiana
1982 - 1985 - Deputy Commanding General, U.S. Army Missile Command, Redstone Arsenal, Alabama
1980 - 1982 - Commander, Division Artillery, 7th Infantry Division, Ft. Ord, California
1977 - 1980 - Staff Officer, later Chief, Surface to Surface Team, Missile and Air Defense Division, later Deputy Director of Weapons Systems, Office, Deputy Chief of Staff for Research, Development, and Acquisition, U.S. Army, Washington, D. C.
1974 - 1975 - Commander, 6/37th Field Artillery Battalion and Commander 1/31st Field Artillery Battalion, 2d Infantry Division, Korea
1970 - 1971 - Deputy G-2, later Executive Officer, 3d Battalion, 82d Artillery, 23d Infantry Division, U.S. Army, Vietnam
1967 - 1969 - Combat Developments Staff Officer, Munitions Division, Materiel Directorate, U.S. Army Combat Developments Command, Ft. Belvoir, Va.
1966 - 1967 - Assistant Sector Advisor, Tam Ky Sub-Sector, Quang Tin Sector, I Corps Advisory Group, U.S. Military Assistance Command, Vietnam

1961 - 1963 - Commander, 32d U.S. Army Missile Detachment, 552d Artillery Group, U.S. Army Europe
1959 - 1961 - Executive Officer, 32d U.S. Army Missile Detachment, 552d Artillery Group, U.S. Army Europe
1958 - 1959 - Platoon Commander, later Assistant S-3, 3d Missile Battalion, 32d Artillery, 52d Artillery Group, Ft. Sill, Oklahoma
1958 - 1958 - Reconnaissance and Survey Officer, later Commander Battery B, 2d Gun Battalion, 39th Artillery, 52d Artillery Group, Ft. Sill, Oklahoma

STATEMENT BY MAJOR GENERAL THOMAS D. REESE ON ARMY AVIATION PROCUREMENT FOR FY 1990 AND FY 1991 FOR THE HOUSE APPROPRIATIONS COMMITTEE

16 MARCH 1989

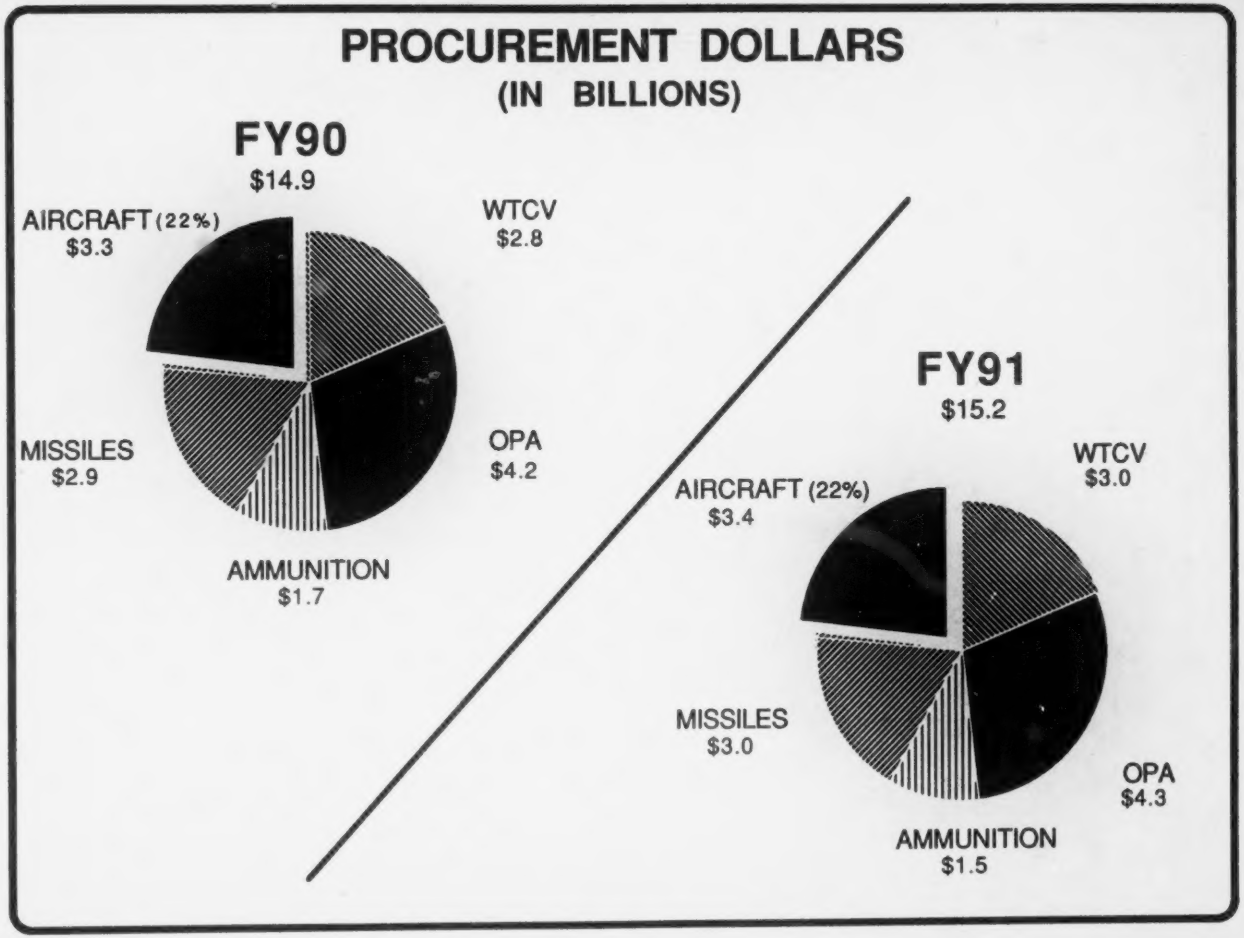
MR. CHAIRMAN, I AM MAJOR GENERAL THOMAS D. REESE, DEPUTY FOR SYSTEMS MANAGEMENT, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT AND ACQUISITION. MY STATEMENT WILL ADDRESS THE FY 90/91 BUDGET, AS SUBMITTED BY THE OUTGOING ADMINISTRATION, FOR AIRCRAFT PROCUREMENT. DEPARTMENT OF DEFENSE IS REVISING THE FY 90/91 BIENNIAL BUDGET BASED ON NEW GUIDELINES.

THIS BUDGET CONTINUES TO SUPPORT THE AVIATION MODERNIZATION PLAN (AAMP) PRESENTED TO YOU LAST YEAR. THE AAMP ENCOMPASSES THE ENTIRE RDTE AND PROCUREMENT AVIATION MISSION AREA TO INCLUDE ALL AIRCRAFT, THEIR ASSOCIATED SYSTEMS AND REPAIR PARTS. SYSTEMS WILL BE PROCURED AT THE MOST ECONOMIC RATE WITHIN AAMP LEVEL FUNDING AND, WHERE POSSIBLE, THROUGH MULTIYEAR CONTRACTING. THE AAMP PROVIDES THE FRAMEWORK FOR MODERNIZING ARMY AVIATION DURING THIS PERIOD OF CONSTRAINED FUNDING AND RESPONDS TO ADVANCES IN THE THREAT AND REFINEMENTS IN FORCE DESIGN AND WARFIGHTING CAPABILITIES. THE BASIC FUNDAMENTALS OF THIS PLAN ARE:

- CONTINUE CURRENT PRODUCTION
- DEVELOP NEW HELICOPTER (LHX)
- LIMIT MODIFICATION TO CURRENT HELICOPTERS
- RETIRE SOME AGING HELICOPTERS
- REDUCE AVIATION FORCE STRUCTURE
- LEVEL FUNDING CONCEPT

UNDER THIS BUDGET WE CONTINUE PROCUREMENT OF BOTH THE APACHE (AH-64) AND BLACK HAWK (UH-60) AT RATES OF 72 PER YEAR WITH A FORCE MODERNIZATION GOAL OF 975 AH-64s AND 2253 UH-60s. WE CONTINUE THE MODERNIZATION OF THE CH-47 AT 48 PER YEAR MOVING TOWARD OUR GOAL OF 472 CH-47Ds. OH-58 MODIFICATIONS ARE PROGRAMMED AT 36 PER YEAR TO PROVIDE A TOTAL OF 375 OH-58Ds OR AHIPs. SPECIAL OPERATIONS AIRCRAFT WILL BE BUILT AND OUR IMPROVEMENT OF SPECIAL ELECTRONIC MISSION AIRCRAFT WILL CONTINUE. DEVELOPMENT OF THE LIGHT HELICOPTER (LHX) CONTINUES WITH EXPRESSED EMPHASIS ON COST AND WEIGHT GOALS. WE ALSO CONTINUE TO DEVELOP AND APPLY THOSE SAFETY AND MISSION ESSENTIAL MODIFICATIONS NECESSARY TO PROTECT OUR INVESTMENT. ADDITIONALLY FUNDING OF AVIATION SUPPORT PROGRAMS AND RETIREMENT OF OLDER AIRCRAFT ALSO CONTINUES.

USING THE PRINCIPLES OF THE MODERNIZATION PLAN AS OUR GUIDE, THE AVIATION PROCUREMENT REQUEST FOR FY 90 IS $3,267.5 MILLION AND FOR FY 91 IS $3,377.3 MILLION. THIS EQUATES TO 22 PERCENT OF THE TOTAL ARMY PROCUREMENT REQUEST IN EACH YEAR.



PROCUREMENT DOLLARS
(IN BILLIONS)

BREAKING THIS OUT BY BUDGET ACTIVITY PROVIDES THE FOLLOWING DISPLAY.

AIRCRAFT PROCUREMENT, ARMY
($ IN MILLIONS)

BUDGET ACTIVITY	FY89	FY90	FY91
1 - AIRCRAFT	1430.1	1346.4	1366.7
2 - MODIFICATION OF AIRCRAFT	743.1	1131.0	1178.9
3 - SPARES AND REPAIR PARTS	552.2	576.1	564.9
4 - SUPPORT EQUIPMENT AND FACILITIES	146.4	214.0	266.8
APPROPRIATION TOTAL	2871.8	3267.5	3377.3

I WILL ADDRESS THE REQUESTED FUNDING BY MAJOR ITEM UNDER EACH OF FOUR BUDGET ACTIVITIES.

ACTIVITY 1, AIRCRAFT, PROVIDES FOR THE PROCUREMENT AND MANUFACTURE OF AIRPLANES, HELICOPTERS AND THEIR ASSOCIATED EQUIPMENT. MAJOR FY 90 AND FY 91 BUYS WILL BE:

FUNDING ($ IN MILLIONS)

	FY89		FY90		FY91	
SYSTEM	QTY	$	QTY	$	QTY	$
AH-64 ATTACK HELICOPTER & ADVANCE PROCUREMENT	72	932.1	72	826.1	72	768.9
UH-60 BLACK HAWK & ADVANCE PROCUREMENT	72	430.7	72	386.4	72	412.7
MH-60K SOF AIRCRAFT			11	71.3	11	68.5
RC-12K RECON AIRPLANE	6	67.4	5	52.7	10	106.7
GRISLY HUNTER			1	9.9	1	9.9

I WILL ADDRESS EACH OF THESE MAJOR BUYS UNDER ACTIVITY 1 SEPARATELY.

THE ARMY REQUIRES A FORMIDABLE TANK KILLING CAPABILITY TO DEFEAT WARSAW PACT ARMOR, DAY OR NIGHT, AND IN ADVERSE WEATHER. THE AH-64 HAS BEEN DESIGNED TO PROVIDE THIS CAPABILITY AS THE ARMY'S PRIMARY ANTI-ARMOR ATTACK HELICOPTER.

AH-64 ATTACK HELICOPTER

- SINGLE ROTOR, TWO PLACE ADVANCED ATTACK HELICOPTER
- PRIMARY ARMAMENT - HELLFIRE MISSILE
- ADDITIONAL ARMAMENT - 30MM GUN AND HYDRA 70 ROCKETS
- ELEVEN BATTALIONS FIELDED (1 TO NATIONAL GUARD)
- PROCUREMENT GOAL - 975 AIRCRAFT/48 BATTALIONS (15 TO ARNG; 4 TO ARMY RESERVES)

FUNDING ($ IN MILLIONS)

	FY89	FY90	FY91
CURRENT YEAR PROC	856.1	736.1	688.9
PLUS ADV PROC	76.0	90.0	80.0
PLUS INITIAL SPARES	83.9	76.5	79.9
PROCUREMENT COST	1016.0	902.6	848.8
QUANTITY	72	72	72

FY 89 PROCUREMENT: EIGHTH PRODUCTION YEAR. BUYS 72 AH-64s AND 1 COMBAT MISSION SIMULATOR (CMS).

FY 90 PROCUREMENT: BUYS 72 AH-64s AND 4 COCKPIT WEAPONS AND EMERGENCY PROCEDURE TRAINERS (CWEPT). FIRST YEAR OF PROPOSED MULTIYEAR.

FY 91 PROCUREMENT: BUYS 72 AH-64s AND 4 CWEPTs

THE ARMY'S PRIMARY TACTICAL LIFT HELICOPTER IS THE UH-60 BLACK HAWK, WITH MISSIONS OF TROOP ASSAULT, RESUPPLY OF TROOPS IN COMBAT, COMMAND AND CONTROL AND AEROMEDICAL EVACUATION. ITS GREATLY ENHANCED SURVIVABILITY PLUS SIGNIFICANT TECHNOLOGICAL RELIABILITY, AVAILABILITY AND MAINTAINABILITY IMPROVEMENTS GIVE IT A STAYING POWER NEVER BEFORE ACHIEVED IN A HELICOPTER.

UH-60A BLACK HAWK HELICOPTER

- TWIN ENGINE, SINGLE ROTOR UTILITY TACTICAL TRANSPORT HELICOPTER.
- WITH A CREW OF 3, CARRIES 11 COMBAT EQUIPPED TROOPS OR EQUIVALENT CARGO LOAD.
- DESIGNED TO OPERATE IN ALL INTENSITIES OF CONFLICT IN ALL EXPECTED GEOGRAPHICAL ENVIRONMENTS.

- o HIGHLY PRAISED BY FIELD COMMANDERS AND TROOPS.
- o 943 DELIVERED THRU FEB 89.

	FUNDING ($ IN MILLIONS)		
	FY89	FY90	FY91
CURRENT YEAR PROG	225.1	206.1	221.6
PLUS ADV PROC	205.6	180.3	191.1
PLUS INITIAL SPARES	37.8	26.4	56.2
PROCUREMENT COST	468.5	412.8	468.9
QUANTITY	72	72	72

FY 89 PROCUREMENT: CONTINUES FY88-91 MULTIYEAR PROCUREMENT CONTRACT. 13TH YEAR OF PRODUCTION. BEGINS FY89-93 MULTIYEAR ENGINE PROCUREMENT. EMI FIXES ONGOING.

FY 90 PROCUREMENT: PROCURES 72 AIRCRAFT.

FY 91 PROCUREMENT: PROCURES 72 AIRCRAFT. COMPLETES FY88-91 MULTIYEAR.

THE SPECIAL OPERATIONS AVIATION (SOA) PROGRAM DEVELOPS AND PROCURES SOPHISTICATED HELICOPTERS FOR SPECIAL OPERATION FORCES (SOF) MISSIONS. THE FUNDING REFLECTED BELOW PROCURES 11 UH-60A AIRFRAMES IN BOTH FY 90 AND FY 91 TO BE MODIFIED TO THE MH-60K CONFIGURATION. THIS WILL BE ACCOMPLISHED AS PART OF THE UH-60A FY88-91 MULTIYEAR.

	MH-60K FUNDING ($ IN MILLIONS)		
	FY89	FY90	FY91
PROCUREMENT COST		71.3	68.5
QUANTITY		11	11

THE SPECIAL ELECTRONIC MISSION AIRCRAFT (SEMA) FLEET PROVIDES A MIX OF RECONNAISSANCE, SURVEILLANCE AND TARGET ACQUISITION SENSORS PLATFORM IN SUPPORT OF THE CORPS COMMANDER. THE RC-12K GUARDRAIL COMMON/SENSOR (GR/CS) AND GRISLY HUNTER ARE HIGHLIGHTED BELOW.

RC-12K GUARDRAIL COMMON/SENSOR

- o GR/CS IS AN AIRBORNE COMMUNICATIONS AND NON-COMMUNICATIONS EMITTER LOCATION SYSTEM.
- o GR/CS FIRST FIELDED SYSTEM THAT PROVIDES DEEP BATTLE WEAPONS CRITICAL TARGETING ACCURACY.

	FUNDING ($ IN MILLIONS)		
	FY89	FY90	FY91
CURRENT YEAR PROG	67.4	52.7	106.7
PLUS INITIAL SPARES	8.8	18.6	14.4
PROCUREMENT COST	76.2	71.3	121.1
QUANTITY	6	5	10

FY 89 PROCUREMENT: FUNDS 6 RC-12Ks AND AIRCRAFT SURVIVABILITY AND AVIONICS EQUIPMENT PACKAGES. GR/CS MAINTENANCE TRAINER DELIVERED.

FY 90 PROCUREMENT: FUNDS 5 RC-12Ks AND AIRCRAFT SURVIVABILITY AND AVIONICS EQUIPMENT PACKAGES.

FY 91 PROCUREMENT: FUNDS 10 RC-12Ks AND AIRCRAFT SURVIVABILITY AND AVIONICS EQUIPMENT PACKAGES.

GRISLY HUNTER

- o AN AIRBORNE DAY/NIGHT RECONNAISSANCE AND SURVEILLANCE SYSTEM FOR LOW INTENSITY CONFLICT ENVIRONMENTS.
- o A TOTAL OF 6 PRODUCTION SYSTEMS WILL BE PROCURED ON A COMPETITIVE BASIS UPON SUCCESSFUL COMPLETION OF THE DEMONSTRATION PROGRAM.

	FUNDING ($ IN MILLIONS)		
	FY89	FY90	FY91
PROCUREMENT COST		9.9	9.9
QUANTITY		1	1

ACTIVITY 2, MODIFICATIONS OF AIRCRAFT, PROVIDES FOR MODIFICATION AND UPGRADE OF AIRCRAFT AND EQUIPMENT PROCURED BY THIS APPROPRIATION. MAJOR ITEMS IN THIS ACTIVITY ARE:

	FUNDING ($ IN MILLIONS, INCLUDING ADVANCE PROCUREMENT)		
	FY89	FY90	FY91
SOF AIRCRAFT MODS	120.5	339.9	317.0
CH-47D MODS	246.3	304.5	243.8
AHIP	202.6	276.4	304.3

	FY89	FY90	FY91
OTHERS:			
OV-1 MOHAWK	6.2	15.2	36.9
RC-12D MODS	31.9	43.1	34.3
RU-21 MODS	7.5	1.5	9.8
AH-1S MODS	29.3	5.9	4.4
AH-64 MODS	6.3	38.1	77.1
OH-58 MODS	17.4	28.2	26.1
UH-1 MODS		9.6	24.0
UH-60 MODS	23.4	41.0	69.0
AIRBORNE AVIONICS	2.7		
ASE MODS	25.0	7.1	12.9
AIRCRAFT 9WW MODS	24.0	19.7	18.6
TRACTOR HEAVY MODS		.8	.8

THE THREE HIGHEST DOLLAR MODIFICATIONS WILL BE FURTHER DISCUSSED.

SOF AVIATION MODIFICATIONS

- PROGRAM IS FOR 23 MH-60Ks, 51 MH-47Es AND 2 COMBAT MISSION SIMULATORS
- PROTOTYPES ON SCHEDULE
- ALL MH-60Ks/MH-47Es DELIVERED BY NOV 92/MAR 93 RESPECTIVELY

FUNDING ($ IN MILLIONS)

	FY89	FY90	FY91
PROCUREMENT	70.5	212.5	317.0
ADV PROCUREMENT	50.0	127.4	
TOTAL	120.5	339.9	317.0
QUANTITY			
MH-47E	5	11	24
MH-60K		11	11

FY 89 PROCUREMENT: FUNDS 5 MH-47Es, LONG LEAD FOR 11 MH-47Es AND 11 MH-60Ks, AND PRODUCTION LINE SET-UP FOR MH-60K LINE.

FY 90 PROCUREMENT: FUNDS LONG LEAD FOR 34 MH-47Es AND 11 MH-60Ks. BUYS 11 MH-47Es/11 MH-60Ks.

FY 91 PROCUREMENT: BUYS 24 MH-47Es AND 11 MH-60Ks.

CH-47D (CHINOOK) MODERNIZATION

- TANDEM ROTOR/ TWIN GAS TURBINE MEDIUM LIFT HELICOPTER.
- MODERNIZES ALL EXISTING HELICOPTERS (472) TO "D" MODEL CONFIGURATION.
- IMPROVES PERFORMANCE, RELIABILITY, AVAILABILITY AND MAINTAINABILITY.
- REDUCES VULNERABILITY.
- EXTENDS FLEET LIFE PAST YEAR 2000.

FUNDING ($ IN MILLIONS)

	FY89	FY90	FY91
PROCUREMENT	161.9	200.2	194.9
ADV PROCUREMENT	84.4	104.3	48.9
INITIAL SPARES	1.8	22.1	16.1
PROCUREMENT TOTAL	248.1	326.6	259.9
QUANTITY	48	48	48

FY 89 PROCUREMENT: EIGHTH PRODUCTION YEAR. FUNDS MODERNIZATION OF 48 CH-47s. COMPLETES CURRENT MULTIYEAR. FY90-92 MULTIYEAR CONTRACT SIGNED JAN 89 FOR BUY OUT OF 144 AIRCRAFT.

FY 90/91 PROCUREMENT: CONTINUES PRODUCTION AT 48 PER YEAR.

OH-58D (AHIP)

- CERTIFIED AS MOST COST EFFECTIVE SCOUT
- PROCUREMENT OBJECTIVE IS 375.
- WILL BE EQUIPPED WITH AIR-TO-AIR STINGER BEGINNING IN FY90.
- ARMY EVALUATION OF ARMED OPTION IS ONGOING.

FUNDING ($ IN MILLIONS)

	FY89	FY90	FY91
PROCUREMENT	168.6	241.1	267.8
ADV PROCUREMENT	34.0	35.3	36.5
INITIAL SPARES	9.0	22.7	23.5
PROCUREMENT TOTAL	211.6	299.1	327.8
QUANTITY	36	36	36

FY 89 PROCUREMENT: PROCURES LOT VI. PRODUCTION INCORPORATION OF ATAS BEGINS WITH THIS LOT.

FY 90 PROCUREMENT: PROCURES LOT VII. STARTS RETROFIT OF ATAS.
FY 91 PROCUREMENT: PROCURES LOT VIII.

ACTIVITY 3, SPARES AND REPAIR PARTS, INCLUDES FUNDS FOR INITIAL SPARES TO SUPPORT NEW OR MODERNIZED AIRCRAFT SYSTEMS AND REPLENISHMENT SPARES TO INCLUDE PEACETIME AND WAR RESERVE SPARES REQUIRED TO MAINTAIN THE FLEET ONCE FIELDED.

	FUNDING ($ IN MILLIONS)		
	FY89	FY90	FY91
	164.9	200.0	206.6
	387.6	376.2	358.3
ACTIVITY TOTAL	552.2	576.2	564.9

SYSTEMS SUPPORTED BY INITIAL SPARES IN THIS BUDGET REQUEST ARE:

	FY89	FY90	FY91
ASE	15.8	20.4	2.2
AH-64	83.9	76.5	79.9
UH-60A	37.8	26.4	56.2
OV-1	.7	1.2	2.3
RC-12	8.8	18.6	14.4
AH-1S	.4	1.0	.6
CH-47	1.8	22.1	16.1
AHIP (OH-58D)	9.0	22.7	23.6
ANVIS	.9	1.3	1.3
AGSE	.7	.3	.3
ATAS	2.2	5.5	5.3
AVIONICS	2.6	4.0	4.4

ACTIVITY 4, SUPPORT EQUIPMENT AND FACILITIES, FUNDS SURVIVABILITY EQUIPMENT, GROUND SUPPORT EQUIPMENT, AVIONICS AND PRODUCTION BASE SUPPORT. ACTIVITY INCLUDES:

	FUNDING ($ IN MILLIONS)		
	FY89	FY90	FY91
AIRCRAFT SURVIVABILITY EQUIPMENT	65.8	98.8	109.2
AVIONICS SUPPORT EQUIP	24.2	23.8	25.1
COMMON GROUND EQUIP	32.3	46.3	75.8
INDUSTRIAL FACILITIES	21.0	23.0	26.5
OTHER:			
WAR CONSUMABLES	3.1	4.3	4.4
AIR TRAFFIC CONTROL		7.8	8.3
SYNTHETIC FLIGHT TRAINING SYSTEM		10.0	9.9
AVIATION NON SYSTEM TRAINING DEVICES			7.5
ACTIVITY TOTAL	146.4	214.0	266.7

AIRCRAFT SURVIVABILITY EQUIPMENT (ASE)

- o ON-GOING RDTE AND PROCUREMENT
- o COORDINATED, JOINT SERVICE AREA
- o TAILORED ASE SUITES FOR ALL PRIORITY AIRCRAFT
- o RESPONDS TO EMERGING THREATS
- o INCREASED MISSION EFFECTIVENESS THROUGH INCREASED AIRCRAFT SURVIVABILITY

	FUNDING ($ IN MILLIONS)		
	FY89/QTY	FY90/QTY	FY91/QTY
WARNING DEVICES (AZ3506)			
AN/APR-39A(V)1	4.5/94	44.1/1022	40.6/1023
AN/APR-39A(V)2		.5	18.6/115
AN/AVR-2	17.0/112	25.6/249	21.0/240
AN/APR-48 (RFI)	10.0/10		24.1/60
INFRARED COUNTERMEASURES (AZ3507)			
AN/ALQ-144A	9.3/192	5.8/219	4.9/109
RADAR COUNTERMEASURES (AZ3508)			
AN/ALQ-136(V)2	21.0/86		
AN/ALQ-162(V)2		21.5/112	
INTERACTIVE SYSTEMS (AZ3509)			
M-130 DISPENSER	4.0/618	1.3/159	
TOTAL ASE (AZ3504)	65.8	98.8	109.2

AVIONICS SUPPORT EQUIPMENT

- o CONTINUES PROCUREMENT OF AN/AVS-6 THIRD GENERATION AVIATOR'S NIGHT VISION IMAGING SYSTEM (ANVIS)

	FUNDING ($ IN MILLIONS)		
	FY89	FY90	FY91
PROCUREMENT	24.2	23.8	25.1
QUANTITY	1615	1950	2049

COMMON GROUND EQUIPMENT

- o INCREASES READINESS THROUGH BETTER AIRCRAFT AVAILABILITY AND SHORTER TIMES TO REPAIR
- o ENHANCES AIRCREW SAFETY AND SURVIVABILITY
- o PROVIDES ESSENTIAL EQUIPMENT TO MAINTAIN ARMY AIRCRAFT FLEET

	FUNDING ($ IN MILLIONS)		
	FY89	FY90	FY91
ITEMS LESS THAN $2M	1.0		
AIRFIELD SUPPORT EQUIP	5.5	10.9	18.5
AVIATION LIFE SPT EQUIP	4.8	2.9	16.5
SETS, KITS & OUTFITS	5.0	3.8	6.8
AVN GROUND SPT EQUIP	2.4	11.8	17.8
POSITION LOCATOR SYSTEM	5.5	10.5	6.8
AN/PRC-112 SURVIVAL RADIO	8.1	6.4	9.4
TOTAL	32.3	46.3	75.8

FY 89 PROCUREMENT: PROCURES 3,700 AN/PRC-112 RADIOS. POSITION LOCATOR SYSTEMS (PLS) FOR SOA. PROCURES 2,000 M-43 AVIATOR PROTECTIVE MASKS, 1,580 AVIATOR FLOTATION KITS AND 30 HELICOPTER OXYGEN SYSTEMS (HOS).

FY 90 PROCUREMENT: BUYS 1,320 PRC-112s, 267 PLSs, 199 HOS AND 908 FLOTATATION KITS.

FY 91 PROCUREMENT: BUYS 1,234 INTEGRATED BODY AND HEAD RESTRAINT SYSTEM KITS, 3,784 AIRCREW MODULAR SURVIVAL SYSTEMS AND 73 HOS. BUYS 1,960 PRC-112s AND FINAL 36 PLS DEVICES.

INDUSTRIAL FACILITIES

- o PROVIDE INCENTIVES TO IMPROVE CONTRACTOR EFFICIENCY.
- o MAINTAIN GOVERNMENT OWNED PLANT AND EQUIPMENT.
- o ESTABLISH AND MAINTAIN DEPOT REPAIR CAPABILITY.
- o EXPAND AND MAINTAIN THE INDUSTRIAL BASE.

	FUNDING ($ IN MILLIONS)		
	FY89	FY90	FY91
VALUE ENGINEERING (VE)	1.0	1.3	1.2
PROVISION OF INDUSTRIAL FACILITIES (PIF)	15.7	4.5	10.6
DEPOT MAINTENANCE PLANT EQUIPMENT (DMPE)	4.3	17.2	14.7
TOTAL	21.0	23.0	26.5

FY89: VE IS PROVIDING VE SUPPORT FOR THE APACHE HELICOPTER AND FOR VE TRAINING OF GOVERNMENT PERSONNEL. PIF FUNDING IS FOR THE REHABILITATION OF GOVERNMENT OWNED FACILITIES AT THE STRATFORD ARMY ENGINE PLANT AS WELL AS FOR GOVERNMENT OWNED EQUIPMENT FOR THE APACHE HELICOPTER AND FOR THE T700 ENGINE. DMPE PROVIDES FOR TEST EQUIPMENT FOR DIAGNOSTICS AND REPAIR OF TARGET ACQUISITION DESIGNATION SIGHT (TADS) AND PILOT NIGHT VISION SENSOR (PNVS) SUBSYSTEMS OF THE APACHE; AND OF THE COBRA HELICOPTER.

FY90: VE PROVIDES SUPPORT FOR HELICOPTER SYSTEMS AND FOR VE TRAINING OF GOVERNMENT PERSONNEL. PIF FUNDING IS FOR THE REHABILITATION OF GOVERNMENT OWNED FACILITIES AT THE STRATFORD ARMY ENGINE PLANT AS WELL AS UPGRADING GOVERNMENT OWNED EQUIPMENT FOR THE T700 ENGINE. DMPE PROVIDES FOR TEST EQUIPMENT FOR DIAGNOSTICS AND REPAIR OF TADS AND PNVS SUBSYSTEMS OF THE APACHE; TEST STATIONS AND FIXTURES FOR THE APACHE; TEST EQUIPMENT FOR THE ARMY HELICOPTER IMPROVEMENT PROGRAM (AHIP); AND TEST STATIONS/SETS FOR ADVANCED QUICKLOOK.

FY91: VE PROVIDES SUPPORT FOR HELICOPTER SYSTEMS AND FOR VE TRAINING OF GOVERNMENT PERSONNEL. PIF FUNDING IS FOR THE REHABILITATION OF GOVERNMENT OWNED FACILITIES AT THE STRATFORD ARMY ENGINE PLANT AS WELL AS UPGRADING GOVERNMENT OWNED EQUIPMENT FOR THE T700 ENGINE. DMPE PROVIDES FOR TEST EQUIPMENT FOR DIAGNOSTICS AND REPAIR OF TADS AND PNVS SUBSYSTEMS OF THE APACHE;

TEST STATIONS AND FIXTURES FOR THE APACHE; TEST STATIONS AND SETS FOR ADVANCED QUICKLOOK, AHIP, AND GUARDRAIL COMMON SENSOR.

MR. CHAIRMAN, WE RECOGNIZE THE AUSTERE FUNDING ENVIRONMENT THAT FACES US AND WE CONTINUE TO EXERCISE FISCAL RESTRAINT AND MANAGEMENT POLICIES THAT ARE CONSISTENT WITH THE ARMY AVIATION MODERNIZATION PLAN'S LEVEL FUNDING CONCEPT.

ADHERING TO THESE PRINCIPLES WE HAVE TAKEN MAXIMUM ADVANTAGE OF THE SAVINGS INHERENT IN MULTIYEAR CONTRACTING. EXAMPLES INCLUDE THE CURRENT BLACK HAWK MULTIYEAR WHICH WILL RESULT IN $139.8 MILLION IN SAVINGS OVER ANNUAL CONTRACTING AND THE PROPOSED APACHE MULTIYEAR WHICH SHOULD ACHIEVE VERY SIGNIFICANT SAVINGS.

WE APPRECIATE VERY MUCH YOUR INTEREST IN AND SUPPORT OF THESE ARMY AVIATION PROGRAMS. WITH CONTINUED SUPPORT OF THIS COMMITTEE, WE ARE CONFIDENT THAT WE CAN MEET THE GOALS OF THE ARMY AVIATION MODERNIZATION PLAN. THIS CONCLUDES MY PREPARED STATEMENT.

CH-47D SAFETY PROBLEMS

Mr. **Murtha**. The CH-47D has had some safety problems, resulting in its being grounded five times since December 1987.

General **Reese**. Yes, sir.

Mr. **Murtha**. Have you got those worked out?

General **Reese**. We have a team, a combined team of government personnel and the contractor that have, in fact, set up a special task force to address the safety issues, the safety corrections. The safety problems that we have identified on the aircraft, I believe, are well on the road towards correction and I can itemize some of those if that would be helpful, sir.

Mr. **Murtha**. There have also been 22 safety messages. What is a safety message?

General **Reese**. A safety-of-flight message would be issued when there is need to alert the aviation community of a potential condition that could impact safety. It would go out when there is a factor that would cause grounding of the fleet. It might go out if there is a mistake we have discovered in maintenance. It alerts the aviation community about a need to do something about a situation related to safety.

Mr. **Murtha**. But, since December of 1987, the fleet has been grounded five times and they have had twenty-two safety messages. Is this a safe aircraft?

General **Reese**. We believe it is, sir.

Mr. **Murtha**. What were the causes of the groundings?

General **Reese**. There was one in December of this past year. In fact, the helicopter was destroyed by an inflight fire in Honduras. The cause of that was the flight control rods were not of sufficient fire retardant material to give the pilots time to get down safely to the ground when that event happened.

Mr. **Murtha**. What caused the fire? Do you know?

General **Reese**. Undetermined at this time, sir. We have taken—in fact, we have grounded the fleet while we put fixes in. Those fixes have been completed, consisting in this case of a fabric fire retardant sleeve installed along with fire-retardant paints. The fix was complete in total the first week of March.

There will be a long-term fix which changes the material in the control rod to steel as opposed to the material that was more susceptible to fire damage.

So, that one has been fixed. It took two months, it was fixed in the field and the fleet was brought up periodically as the team completed fixes the first of March.

We had another incident in February 1988 in Texas. That dealt with a failed transmission cross shaft. That helicopter was also destroyed along with casualties.

When that happened, we grounded the fleet, ordered a fleet-wide inspection of the cross shafts, found three bad in the entire fleet, and, of course, those were fixed.

We have not yet found the root cause of that problem and that is one of the missions that this special task force has to continue searching as to why we had the problem in the four aircraft. Then we have had in the time frame that you mentioned, a one time grounding of the fleet for inspection of a transmission that was suspected to be bad. It was not and the fleet was brought back up to operational status.

For another instance, they were grounded to inspect the transmission cooling fan. This was precipitated because the technical manual had an incorrect specification calling for foot pounds. It should have been inch pounds. That TM has been fixed.

The fifth one that you are talking about, I believe, sir, was grounded for fuel line chaffing. In this instance, we rerouted the fuel lines because in at least one case we found that it was, in fact, rubbing and causing a fuel leak.

CH-47 BUDGET

Mr. MURTHA. We cut $10 million from your program last year. What was the impact of that $10 million reduction since you are still modifying 48 aircraft?

General REESE. It makes the program manager's job ever more difficult to continue to modernize at the rate of 48 per year. He is completing his fifth and last year of multiyear I and is ready to execute, in fiscal year 1990, the subsequent multiyear. He was able to execute what he had intended to do and what needed to be done, albeit, with more difficulty.

Mr. MURTHA. What is your procurement objective for the CH-47?

General REESE. For CH-47, sir, it is 472.

Mr. MURTHA. That is up from 436?

General REESE. Up from 436, which was represented, I think in last year's selected acquisition report, but consistent with the aviation modernization plan.

Mr. MURTHA. Will you have to buy new airframes as a result of this increase?

General REESE. We do not, sir. Some were in desert storage and some were nonflyable trainers. A total of 36 are being brought back into the mod line.

SPECIAL OPERATIONS FORCES AIRCRAFT

TOTAL PROGRAM

Mr. MURTHA. Last year we were told that the Army intended to modify 17 CH-47 aircraft and 23 UH-60 aircraft to a configuration for use by the special operations forces. The current program calls for 51 MH-47s and 23 MH-60Ks.

What caused that change?

General REESE. Sir, that is consistent with initiative 17, the agreement was that the Army would pick up that rotary wing mission. We had planned in our aviation modernization plan the extra 34 CH-47Es. They were funded in our Program Budget Decision—PBD—process between last year's hearing and this budget submit so we can get up to the total quantity of fifty-one.

Mr. MURTHA. Last year the research and development cost for this program jumped from $162 million to $235 million. The procurement cost went from $481 million to $540 million.

What is the current estimate and what accounts for the change?

General REESE. The R&D has had no change from what you were briefed last year, the $235 million remains good.

Mr. MURTHA. Is that contract signed?

General REESE. Yes, sir, that is an ongoing contract.

Mr. MURTHA. Definitized?

General REESE. It was a letter signed in December, 1987.

Mr. MURTHA. We understand it had not been definitized?

General REESE. I am told not yet, April, 1989, sir.

Mr. MURTHA. April of 1989. How long has that been?

General REESE. That would have been two years plus—one year plus.

Mr. MURTHA. A year and a half. So what is the problem there?

General REESE. Sir, I will have to get you the answer on that.

[The information follows:]

IBM has submitted two claims (total of $2.8 million) against Boeing Helicopter Company (BHC), and Sikorsky Aircraft Company (SAC) due to (1) late and deficient government and contractor information and (2) aircraft configuration changes which required IBM to modify their interface control documents. The prototype contracts will not be definitized until these claims have been resolved. Resolution is expected in early April 1989.

Mr. MURTHA. What about procurement?

General REESE. The procurement—we were decremented last year I think $18.5 million, and we have added to the program this year the extra 34 aircraft that we talked about.

Mr. MURTHA. So what is the total procurement cost?

General REESE. The total procurement cost now is $911.02 million.

SOF PROGRAM COST REDUCTION

Mr. MURTHA. The committee has been urging the Army to reduce the cost of this program and report periodically on the progress. What have you done?

General REESE. Okay, sir. Let me review some of the items. We haven't had a revised estimate except as it has been impacted by those dollar values that I mentioned. But we have long lead to be awarded in 1989 and we are going to combine the long lead awards of both the 47E and the 60K as well as the long lead carryover from fiscal year 1988, and we will do a similar thing in fiscal year 1991, combine long lead with the intent being that much of the equipment is common and the primes ought to get a better price from vendors based upon that increased long-lead quantity, which is going to translate down into cost savings for us.

Additionally we have formed a "should cost" board to look at the costs of both proposals and have incorporated into that "could cost" aspects so that we are going to look very hard at the different components that make up these two aircraft, challenging the real need against the price and how we can drive costs down.

We have one proposal in from one of the contractors that is above what we have programmed in our part of the budget and that is going to present a real negotiating challenge to us and we recognize that. But by combining the long lead awards, by doing a "should cost" and incorporating some "could cost" initiatives in there, we hope to drive the costs down. I can't assure you of how down they will go, but we are going to give it every best possible opportunity that we can.

SOF PROTOTYPE DELIVERIES

Mr. **Murtha**. Are we on time here? The MH-47 prototype was going to be delivered in May of this year and the MH-60 prototype was to be delivered in June of this year.

General **Reese**. The MH-47E prototype begins ground testing in October of this year. That is about five months I think from the date that you referenced.

Mr. **Murtha**. It was supposed to be delivered in May of 1989, the MH-47E and the MH-60K were supposed to be delivered in June of this year?

General **Reese**. The ground testing begins on the 47E in October 1989. That will be followed with contractor flight testing beginning in January, 1990. We will get the aircraft at the completion of the contractor flight testing to begin our own airworthiness testing in August of 1990, sir.

Mr. **Murtha**. Well, we just want you to know, as we have explained to all the witnesses who come before the committee, that we have some real budget problems this year. Any program that has a problem is likely to get slipped or cut.

When you start having problems, you just can count on there being some slips. I don't know when we will be marking up, but you have to be aware that the days of having plenty of money available and putting the money in and hoping everything works out are gone. It is going to be a very difficult year on both our parts to come up with enough money to fund these programs. You will have to scrub them yourselves to get the costs down and we will have to do just as well.

Mr. McDade.

Multiyear Procurement

Mr. **McDade**. Thank you, Mr. Chairman.

Let me chat with you about multiyear procurements. There are estimates that under the budget you submitted, if it is approved, 46 percent of it will be under multiyear procurement. That means we won't be able to make a lot of changes without penalty. Given all the reductions that we are going to be facing, doesn't it give you concern to have that much of a budget out there untouchable, so to speak, without paying a lot of penalty?

General **Reese**. There has to be a tradeoff. My figures are a bit less, but regardless, as you have programs into multiyears, you generate the savings inherent in that.

In the case of aviation procurement programs, it allows us to move further along the guideline path of the aviation modernization plan. We don't think that with the incorporation of the Apache multiyear we have too much of our budget in multiyear.

We would like to see that approved along with the ones we have in effect. There are no other mulityears right now that we are contemplating. So if it is 35 percent or 40 percent tied up in multiyear years——

Mr. **McDade**. My figure is 46 percent, what is yours?

General **Reese**. Thirty-one and a half to 32, sir.

Mr. **McDade**. That is a substantial difference. Do you want to take a look at that figure?

Suppose it was about 50 percent; would that bother you? I suppose from your point of view, you want to go multiyear on just about everything.

General **Reese**. I don't know when you reach the point that is too much. We are comfortable with the programs that we have ongoing and those which we have submitted.

Mr. **McDade**. Are there changes being made to this scheme under the Bush revisions to the budget? Are you making changes in the multiyears that you are talking about now?

General **Reese**. What we are doing on that, sir, is that we are maintaining the guidelines, the precepts that are in the Army Aviation Modernization Plan. Now, most of the major programs have been on the table at one time or another, and that is a process that is still working.

Mr. **McDade**. You are not through yet?

General **Reese**. No.

Mr. **McDade**. Have you made changes in any of them?

General **Reese**. To talk to specifics, sir, given the fact that it is still working, I am not prepared to do so.

Mr. **McDade**. You are prepared to talk about the ones you are considering to change aren't you? Which ones are being considered.

General **Reese**. At different times——

Mr. **McDade**. Put in the record every multiyear that is under consideration for change.

[The information follows:]

For the fiscal year 1990 and 1991 amended budget submit all Army aviation programs (to include ongoing and planned multiyear procurements) were reviewed as potential candidates for reduction. However, the Army made a conscious decision to preserve all ongoing multiyear procurements. The Army's proposal for the amended budget is currently under review by the Office, Secretary of Defense. This review will determine whether planned multiyears for the AH-64 (FY 1990-94) and the UH-60 (FY 1994-97) will proceed as planned in the FY 1990/91 Budget of the previous administration.

AH-64 Apache

MULTIYEAR CONTRACT

Mr. **McDade**. Let's talk about the Apache. This budget includes $736.1 million in regular procurement and $90.0 million in advance procurement to buy 72 AH-64 Apache aircraft. The budget assumes a five year multiyear contract for 72 aircraft per year for four years and 12 in the last year. Last year, Congress approved advance procurement for a multiyear contract at 60 aircraft per year. Why was that number changed?

General **Reese**. We moved from the aviation modernization numbers to initially get to 60 so that we would have a reasonable multiyear quantity. In the review of the budget process, we tried to take advantage of a greater quantity of 72 to again achieve the economies of scale with more aircraft.

We have the proposal that was submitted or that was released to the field I think in September. That called for 60. It had provisions in it for plus-ups of I think 25 percent in various increments, giving us the flexibility in that proposal to move to 72.

Mr. **McDade**. What was the rate that was included in the budget which the Army submitted to the OSD?

General Reese. We finally had 60 per year, sir.

Mr. McDade. Are the fiscal year 1990 and 1991 budget sufficient to procure 72 aircraft a year?

General Reese. It is going to give us a real negotiating challenge, sir.

Mr. McDade. By how much, do you have any idea?

General Reese. We are willing to naturally go out there and do the very best negotiating job we can, and I believe that we are going to get more aircraft, a better value for the total department by going out there and doing that hardnosed negotiating and trying to get as many as we can for the dollars.

Mr. McDade. Do you have a ball park estimate? I don't want specifics on your negotiating points but what does it look like the differential is, between funding and the proposed multiyear?

General Reese. We may get more.

Mr. McDade. I am trying to get at the numbers of dollars. If you bought it at current rate, it would appear to be at 72?

General Reese. I would have to provide that for you, sir.

[The information follows:]

AH-64 FUNDING REQUIREMENTS

[In millions of dollars]

	Fiscal year—	
	1990	1991
72/YR MYP Proc	763.9	783.4
Adv Proc	90.0	80.0
Total	853.9	863.4

Mr. McDade. From the point of view of fielding schedule requirements, don't you think that 60 per year is more workable program than 72 a year?

General Reese. We used to have a ramp problem. That is fairly well gone away now. We have 15 to 18 aircraft on the ramp at any given time. The pilot availability and training availability is keeping pace with the fielding schedule, so I still think we will be able to accommodate those requirements at the 72 a year number.

Mr. McDade. You see no problems?

General Reese. That ramp will stay there. In fact I look at that as a plus because it does give us a contingency if we had to use them.

Mr. McDade. What would be required in fiscal years 1990 and 1991 to fund a multiyear contract of 60 per year?

General Reese. I will provide that as well.

[The information follows:]

WEAPON SYSTEM COST 60-YEAR MYP

	Fiscal year—	
	1990	1991
Reagan budget	672.2	692.1
Adv Proc	90.0	80.0
Total	762.2	772.1

FISCAL YEAR 1989 APACHE PROCUREMENT

Mr. McDade. In fiscal year 1989, Congress appropriated $863,476,000 for Apache procurement, $50 million more was authorized. What is the status of the $50 million?

General Reese. Sir, that today has still not been authorized to the best of my knowledge.

Mr. McDade. What about the position of the Department of the Army?

General Reese. We will be able to execute the fiscal year 1989 Apache buy by bringing forward the extra funds that were provided for ten additional aircraft in 1988. We will roll those numbers forward into the fiscal year 1989 buy so we can buy 82 at cheaper prices and not need the $50.4 million for the Apache buy. We certainly have good uses to which that money could be applied.

Mr. McDade. You found some contract savings did you?

General Reese. No sir. You had programmed ten additional aircraft for us in fiscal year 1988. We rolled the money associated with those ten forward to allow a more economical buy in fiscal year 1989.

Mr. McDade. How many did you buy in 1989?

General Reese. We will buy the 72 authorized and appropriated, plus the ten—we will buy 82, sir.

Mr. McDade. And you don't have any need for the money?

General Reese. We can use that money. We have another combat mission simulator that we would like to buy.

Mr. McDade. It was proposed to help you get the 72. You found the money to get to the 72, in fact, you went to 82?

General Reese. With those economies by bringing forward that money from fiscal year 1988, we will be able to execute the quantity buy of 82.

Mr. McDade. So the $50 million we had proposed is not necessary for the multiyear?

General Reese. For that purpose.

Mr. McDade. You were talking about what you might be able to use that $50 million for if it does get released. State what you were talking about.

General Reese. There is a combat mission simulator. we need it. We would like to buy it. Additionally, this will allow us to—that would cost $22 million. We would put the laser warning receiver into the aircraft. That is about $16 million. And the rest would go to procure four of the cockpit weapons emergency procedures trainers.

Mr. McDade. Last year the Army testified to the committee in July that $863.2 million was required to procure 72 aircraft and one combat mission simulator. We were told that if the authorized $813 million was provided, there would be no simulator and only 68 aircraft. Apache is in its eighth year of procurement. Why are your estimates so bad?

General Reese. Sir, I have asked that same question myself, having read the testimony from last year, and I don't have a good answer for you. The indices that were being used for the estimates haven't proven out to be what we are able to negotiate. I am still working that problem, and take it as a problem for me to try to bring to resolution.

Mr. McDade. Answer the rest of the questions for the record, please.

[Clerk's note.—Questions submitted for the record and the answers thereto follow:]

Question. What is the status of the fiscal year 1989 procurement contracts for Apache and what are the milestones?

Answer. The proposal was received on 7 August 1988. Proposed evaluation culminating with approval of the government's negotiation objectives was completed in March 1989. Negotiations began 8 March 1989. Target date for completion of negotiations and award of the contract is 30 June 1989.

Question. What are the milestones for the multiyear contract?

Answer. The proposal was received on 23 December 1988. Proposal analysis will be completed in July 1989. Negotiation of the multiyear contract is dependent upon completion of the FY 1989 procurement contract, as discussed above, and the option which forms the baseline for the multiyear procurement savings measurement. Congressional briefings not later than 29 August 1989.

[Clerk's note.—End of questions submitted for the record.]

AH-64 MULTIYEAR CONTRACTS

Mr. McDade. Tell us if you intend to procure the TADS/PNVS under a multiyear contract as well?

General Reese. We do. The proposed one with Martin Marietta is in parallel with the airframe contract.

Mr. McDade. The Apache airframe contractor has submitted a multyear proposal for 60 per year, as requested by the Army last September. Did that proposal include option prices for 72 per year?

General Reese. It includes option prices for 25 percent increments which includes enough to get to 72. He does not have to go back and restart.

Mr. McDade. What variation in quantity clause do you intend to have in the multiyear contracts?

General Reese. In that particular one if we negotiated to 72, we would have that plus-up quantity. I can't give you right here what we would have in the way of the downside. But, there should be one there.

Mr. McDade. There would be?

General Reese. I would say there should be, but I would have to verify and provide that to you.

[The information follows:]

An option quantity clause to increase the quantity by up to 25 percent is included in the multiyear request for proposal. The Army intends to negotiate a clause to permit downward adjustments necessitated by Gramm-Rudman-Hollings reductions.

Mr. McDade. What provisions will be included in the multiyear contract to enable the Government to benefit from lower unit costs resulting from prospective foreign military sales?

General **Reese**. There should be a price adjustment clause for that kind of stipulation. In past multiyears we have had that included.

Mr. **McDade**. You will see that it is in again?

General **Reese**. Yes, sir. If it is not, I owe you a come-back, sir.

AH-64 MULTI-STAGE IMPROVEMENT PROGRAM

Mr. **McDade**. Let us know if there is some problem as you negotiate. The Army has started a Multi-Stage Improvement Program—MSIP—for Apache. When will these changes be made to the production aircraft and how are these changes accommodated in the proposed multiyear contracts?

General **Reese**. Sir, the Apache Multi-Stage Improvement Program is in the decision process right now. Whatever comes out of that will be consistent with the sustainment modifications and safety. You won't see anything appearing in the procurement accounts, I believe, unti 1992.

Mr. **McDade**. What year did you say?

General **Reese**. I think 1992 from the production standpoint. Whatever comes out of the Multi-Stage Improvement Program would be included in the multiyear through the ECP process, Engineering Change Proposals.

Mr. **McDade**. Are you going to change the contract?

General **Reese**. No, sir. If you incorporate those changed components into the existing contracts through Engineering Change Proposals, properly costed.

Mr. **McDade**. You have a section in the contract?

General **Reese**. Yes. Again, that is supposed to be in there and I will verify that one, too.

[The information follows:]

Appropriate clauses which allow for the incorporation of the Multi-Stage Improvement Program will definitely be included in the multiyear contract.

Mr. **McDade**. Thank you, General. Thank you, Mr. Chairman.

Mr. **Murtha**. Mr. Miller?

Electromagnetic Interference Vulnerability (EMI)

Mr. **Miller**. Thank you, Mr. Chairman. It appears from the news account that I have seen that the Apache helicopter has, to quote from the IG's report, "an extreme electromagnetic interference vulnerability." Apparently the IG is also concerned about the viability of the interim fix, which is to apply, as I understand it, metallic paint to the aircraft itself.

Can you tell us the cost of such an interim fix and is it worth it, given the metallic paint might not do the job?

General **Reese**. On the Apache we have a far less EMI problem than we do on, for instance, the Black Hawk. In fact, the basic airframe of an Apache and the location of the components that can be potentially susceptible to that kind of condition have proven to be very resistant to the EMI phenomenon.

We have tested the Apache and most of the manifestations of that environment in an Apache, fall in the blinking light nuisance kind of category. We have in the case of the Apache put fixes, about three kinds of fixes dealing with shielding of cables, the paint that you talk about and filters on connectors.

We have tested the Apache that we have fixed and those fixes have taken. I contend we don't have a significant problem at all, very, very minor with Apache. The fixes can be cranked into the production line by incorporating these techniques, rather than having to pull things out and do them over, significant cost.

We will have some costs to go back and retrofit the fleet, and we have programmed that out in 1990, 1991 and 1992. It is funded in those years. The three years combined are $26 million. The total retrofit of the fleet for Apache would not exceed $43 million.

Mr. **Miller**. As you stated, the problem is larger in the Black Hawk.

General **Reese**. Yes, sir.

Mr. **Miller**. What is being done at the present time concerning the Black Hawk in solving that problem?

General **Reese**. We have—I would identify one of the problems on the Black Hawk is considerably more serious than the other ones. That dealt with the hydraulic logic module. It did experience some command and control movement problem when it flew over an antennae farm.

We have hardened that module and have begun the retrofit to the fielded fleet and of course will incorporate that into the production line. The fleet will be hardened by the end of calendar year 1989. In the intervening period we have put out safety of flight messages warning aviators to avoid those kinds of antennae farms.

There is a series of other much less serious conditions, 15 or 16, maybe a couple one way or the other. They are in the blinking light, flickering meter kind of category for the most part.

The Program Manager or PM, as determined fixes for those particular programs, with the balance to be in the retrofit process between 1990 and 1992.

Mr. **Miller**. What will that cost for the Black Hawk?

General **Reese**. The initial fix that I talked about, the hydraulic control module, is about $11.5 million. To put an entire EMI fix on the fleet will cost about $72,000 per aircraft, and if I could break that out, it is about $50 million in addition to what has been spent already to retrofit the fleet, and it would be a total of $174 million, including the retrofit and the production through the rest of the buy of Black Hawk.

Mr. **Miller**. How did we get into the problem,

General **Reese**. When we did the design work on the Black Hawk, we thought that the protection level to the standard that was specified was going to be adequate. We have learned that that was not the case and the hardening standards that we are using is to the 100 volts per meter.

Mr. **Miller**. The Navy specs?

General **Reese**. The Navy standards, yes, sir. We designed the Black Hawk originally to the existing standard and that wasn't good enough, as we have found out.

Mr. **Miller**. Very good. Thank you. Thank you, Mr. Chairman.

Mr. MURTHA. Mr. McDade?

Mr. McDADE. No questions.

Mr. MURTHA. We will have some questions for the record. Thank you very much, gentlemen. The committee will adjourn until 10:00 o'clock Tuesday morning.

General REESE. Thank you, sir.

[CLERK'S NOTE.—Questions submitted for the record, and the answers thereto follow:]

ARMY AVIATION MODERNIZATION PLAN

Question. Last year, the Army presented the Committee with a long-range aviation modernization master plan. In what specific ways is your fiscal year 1990 budget program different from this plan, and why?

Answer. The fiscal year 1990 budget program changes from the Army Aviation Modernization Plan (AAMP) provided to the Committee last year, and rationale for the changes, are as follows:

AH-64: AAMP 48 aircraft. Fiscal Year 1990 Budget 72 aircraft.

Rationale: Seventy-two represents the minimum economic rate (MER) of production. This rate will provide efficient, economical production buys. Also provides for training, spares and float helicopters.

OH-58D—No Change: UH-60A/MH-60K: AAMP 61/11 aircraft. Fiscal Year 1990 Budget 72/11 aircraft.

Rationale: OSD provided funds to procure 11 MH-60H airframes in fiscal year 1990—additive to 72 UH-60A for conventional forces.

CH-47D/MH-47E—No Change: Special Electronic Mission Aircraft (SEMA): AAMP 20 aircraft. Fiscal Year 1990 Budget 6 aircraft.

Rationale: Budget constraints required this reduction.

Question. How is the budget for fiscal year 1991 and the out years different from last year's master plan, and why?

Answer. The AAMP presented a $3.4 billion base line Total Obligation Authority (TOA) (in fiscal year 1989 dollars) for Aviation with a funding band of plus or minus 15 percent to represent level funding. Level funding from fiscal year 1991 through fiscal year 1994, as submitted in the AAMP, was as follows:

[In billions of dollars]

	Fiscal year—			
	1991	1992	1993	1994
+15 percent	4.15	4.27	4.37	4.47
3.4 billion +2 percent inflation	3.62	3.72	3.80	3.89
−15 percent	3.08	3.17	3.24	3.32

The Army aviation budget for fiscal year 1991 and the out years (per President's Budget) is as follows:

[In billions of dollars]

Fiscal year:	
1991	4.20
1992	4.31
1993	4.03
1994	3.17

The fiscal year 1991 difference ($5 million above +15 percent level) is due to aircraft additions (25 MH-47Es, 32 AH-64s, 11 UH-60As), and reductions (2 SEMA aircraft and 12 OH-58s).

Fiscal year 1992 difference ($4 million above +15 percent level) is due to aircraft additions (10 MH-47Es, 32 AH-64s) and reductions 18 OH-58Ds, 12 UH-60As, and 11 SEMA aircraft).

Fiscal year 1993 difference ($340 million below +15 percent level) is due to aircraft additions (32 AH-64s), and reductions (18 OH-58s, 12 UH-60As, and 13 SEMA aircraft).

Fiscal year 1994 difference ($1.3 billion below +15 percent level) is due to aircraft reductions (8 AH-64s, 30 OH-58Ds, 12 UH-60As, and 14 SEMA aircraft), as well as reduced funding for the 12 AH-64s we planned to procure in fiscal year 1994.

The main reasons for the changes:

OSD funding increase for 34 additional MH-47Es and 11 MH-60Ks.

Take advantage of multiyear procurements (AH-64, UH-60) allowing substantial savings over the POM years. (AH-64 is not currently on a multiyear contract—Army is working toward this).

Retire older aircraft at an accelerated pace due to budget constraints.

Question. What changes are being made in your fiscal year 1990 and 1991 budget as a result of the Bush budget reduction?

Answer. We are currently working on these changes and plan to present the amended budget to Congress by the end of April 1989.

MULTIYEAR PROCUREMENT

Question. If Congress approves your budget as submitted, 46 percent of this appropriation will be under multiyear procurement. That means that nearly half of the funding will be on "automatic pilot." Given the reductions that will have to be made in fiscal year 1990 and future years, does it concern you that only half of this account can be changed without suffering significant financial penalty?

Answer. There has to be a tradeoff. My figures are a bit less; 26.3 percent in fiscal year 1989, 30.8 percent in fiscal year 1990, and 31.5 percent in fiscal year 1991, these figures include the proposed multiyear starting in fiscal year 1990 for the APACHE and the Target Acquisition Designation Sight/Pilot Night Vision Sensor (TADS/PNVS).

In the case of aviation procurement programs, it allows us to move further down the guideline path of the aviation modernization plan. We don't think that with the incorporation of the APACHE multiyear we have too much of our budget in multiyear.

We would like to see the APACHE multiyear approved. There are no other multiyears right now that we are contemplating for the fiscal year 1990-1991 budget. If for some reason we do not negotiate an APACHE multiyear then we would only carry forward four multiyear programs and the percentages previously presented above would revert to: 23.6 percent in fiscal year 1989, 16.6 percent in fiscal year 1990, and 17.3 percent in fiscal year 1991. It must be pointed out that these figures are based on the Budget of the previous administration.

AIRCRAFT PROCUREMENT, ARMY, MULTIYEAR

[President's budget in millions of dollars]

	Fiscal year—		
	1989	1990	1991
System:	2,871.8	3,267.5	3,377.3
CH–47	248.7	183.4	233.8
T–700 engine	156.1	129.3	128.7
UH–60 airframe	252.9	230.3	222.0
AN/ALQ–136	21.0		
AH–64 (proposed)	46.5	394.1	407.2
TADS/PNVS (proposed)	29.5	69.7	72.0
Total	754.7	1,006.8	1,063.7
Percent of total APA	26.3	30.8	31.5

[CLERK'S NOTE.—The above costs include only those costs associated directly with multiyear contracts and not the total program costs: For example, for the UH–60 this table shows $230.3 million in fiscal year 1990, while the total UH–60 cost in the P–1 is $386.4 when all costs are included for programs on multiyear contracts, the total is above 46 percent of this appropriation in 1990.]

Question. Are changes to current multiyear contracts being considered as part of the Bush revision? If so, which ones?

Answer. What we are doing on that, sir, is maintaining the guidelines, the precepts that are in the Army Aviation Modernization Plan. Now, most of the major programs have been on the table at one time or another, and that is a process that is still working.

But, to answer your specific question, we do not have any of the four currently contracted aviation procurement multiyears scheduled for consideration of change in the Bush budget revision.

We are in discussion with OSD as to the extent of the APACHE program and its possibilities for multiyear starting in fiscal year 1990. The APACHE program will be definitized in the ongoing budget revision cycle scheduled for completion on April 28, 1989.

ARMY HELICOPTER IMPROVEMENT PROGRAM (AHIP)

Question. The original plan for the Army Helicopter Improvement Program (AHIP) was procure 578 aircraft. Last year's aviation modernization master plan provided for 489 aircraft. However, the fiscal year 1990/1991 budget forecasts procurement of only 375. Why has the quantity changed?

Answer. Funding in the original program supported procurement of 578 Army Helicopter Improvement Program (AHIPs) and assumed fielding in the Field Artillery Aerial Observer (FAAO) role and to attack helicopter battalions. Concerns relating to the cost effectiveness of the AHIP in the scout role caused the program to be refocused to just the FAAO requirement and almost led to program termination. Subsequent testing has resulted in OSD certification that the AHIP is the most cost effective scout helicopter. As the

Army's Aviation Modernization Plan (AAMP) was developed the requirement for AHIP, within the level funding concept, was defined as 477. OSD, during review of the Army's Program Objective Memorandum for fiscal years 1990/1994, limited AHIP procurement to 375 due to affordability.

Question. AHIP procurement has been limping along at a minimum rate of 36 modifications per year, the number funded in the fiscal year 1990 budget. Are reductions to this program being considered as part of the Bush revisions?

Answer. The AHIP program was not changed in the Army's amended budget submit which is currently under review by OSD.

Question. The Army made a special modification to 15 AHIP's to give them an attack capacity. What has been your experience with these aircraft? Have any been used in actual combat?

Answer. The Armed AHIPs provided to the XVIII Airborne Corps to support the Prime Chance mission were created as a quick response (less than 100 days) using existing equipment and without the benefit of a thoroughly integrated engineering effort. This short notice effort resulted in a highly capable but high gross weight, non-integrated mission support package for the Armed AHIP. Director, Operational Test amd Evaluation (OT&E) (OSD) conducted an extensive three day visit in September 1988 to evaluate the Armed AHIP operational capabilities in the Persian Gulf. All deployed AHIPs reported operating as planned and were achieving the utmost in maintenance standards with a cumulative mission, capable rate of 95 percent. If Armed AHIP is approved for production this aircraft will benefit from an integrated engineering effort and from lessons learned. Production Armed AHIPs will be lighter and have fully integrated weapon systems making it a superior aircraft over the current Prime Chance aircraft.

The Prime Chance Armed AHIPs have been used very effectively in combat in the Persian Gulf.

Question. Where are the 15 armed AHIPs today?

Answer. The 15 Armed AHIPs are currently assigned to 1–159th Aviation Company, XVIII Airborne Corps, Fort Bragg, NC. These aircraft support the Prime Chance mission in the Persian Gulf and rotate between home base and the Gulf depending on the current situation and the mission optempo.

Question. The aviation modernization master plan of last year says that "an armed version of the OH–58D may be fielded." Does the Army have an approved, validated, requirement for armed AHIP's?

Answer. Updated requirements documents for AHIP, to include the requirements for an armed version, have been developed by the U.S. Army Training and Doctrine Command (TRADOC) and are undergoing final review at that headquarters prior to submission to Headquarters, Department of the Army, for approval.

Question. How many armed AHIP's does the Army intend to buy and how many are funded in fiscal year 1990 and 1991?

Answer. The Army's procurement objective for AHIP is 375. All AHIP's will be armed with Air-to-Air Stinger (ATAS). The Army is currently reviewing the addition of air-to-ground weapons. A decision, based on adequate documentation and a thorough review of the program, is currently anticipated in July 1989. Fiscal year 1990 currently has $28.1 million to support integration, testing and procurement of long lead items to support production incorporation in fiscal year 1991. Some of this money must be shifted to our research and development account to more appropriately fund the effort. Fiscal year 1991 funds are adequate to arm the 36 aircraft to be procured that year.

Question. To what units will armed AHIPs be assigned and what will be their mission?

Answer. If the Army decides to proceed with an Armed AHIP the aircraft will be assigned to the air cavalry/reconnaissance troops of the forward deployed heavy divisions and Armored Cavalry Regiments (ACRs), and the reconnaissance/attack troops of the Rapid Deployment Forces.

The Armed AHIP would perform the missions currently being performed by three types of helicopters AH-1, OH-58A/C, and OH-6. These missions are: cavalry/reconnaissance, and attack missions in selected Rapid Deployment Forces.

The AHIP would continue to perform field artillery aerial observation missions in the target acquisition and reconnaissance platoons of command aviation companies and the corps level target acquisition and reconnaissance companies.

Question. Last year, the Committee directed that $28 million in the initial spares line be allocated to AHIP. Why does your current budget show only $9 million for AHIP spares in fiscal year 1989?

Answer. The budget is in error. We understand the intent, and will shift funds accordingly, at the first opportunity, to plus-up AHIP initial spares to the directed $28 million.

Question. Your fiscal year 1990 budget shows $22.7 million for AHIP spares. Is this a "fully funded" request?

Answer. Yes, this is a "fully funded" request.

Question. Last year, Congress appropriated $190.6 million to procure 36 AHIP's, including $20 million for air-to-air Stinger. Based on your contract experience to date, do you expect to be able to execute this program?

Answer. Yes.

Question. The cost of 36 AHIP's goes from $190.6 million in fiscal year 1989 to $254 million in 1990. Explain this 34 percent increase.

Answer. The majority of the cost increase of $63.4 million between fiscal year 1989 and fiscal year 1990 is the $28.1 million to implement the armed option if approved by the on-going Army Systems Acquisition Review Council (ASARC) decision process. Other efforts contributing to the increase, besides inflation, include Optical Improvement Program (OIP) costs for the Mast Mounted Sight (MMS), alternate laser coding costs, costs to upgrade the Master Controller Processor Unit (MCPU) and add the Integrated Systems Processor and the cost for incorporation of the Global Positioning System (GPS).

Question. Provide for the record a specific justification for the increase from $144.3 million to $190.4 million for recurring hardware costs and the increase from $28.1 million to $40.9 million for "other."

Answer. The increase from $144.3 million to $190.4 million for recurring hardware is due to:

[In millions of escalated dollars]

Production incorporation of:	
Optical Improvement Program (OIP)	6.6
Alternate Laser Coding	2.9
Global Positioning System (GPS) Provisions	1.9
Armed AHIP	28.1
Subtotal	39.5
Communication/Navigation	3.0
Mast Mounted Sight Processor Modification	1.9
Inflation	1.7
Total	46.1

A comparison of "Other" cost from fiscal year 1989 to fiscal year 1990 indicates the increase is due to inflation, value engineering and Modification Work Order (MWOs).

[In millions of escalated dollars]

	Fiscal year—	
	1989	1990
Other:		
System Program Management	23.197	24.347
Flight Safety Parts	2.500	2.600
Warranty	0.527	0.543
In-House	1.800	2.000
Transportation	0.034	0.030
Value Engineering	0.000	2.600
MWOs	0.000	8.732
	28.058	40.852

No Value Engineering (VE) Proposals were received in fiscal year 1989. The funds budgeted for VE were used for Hardware.

MWOs began Master Controller Processor Unit (MCPU)/Integrated System Processor (ISP) Integration, and provisioning for Global Positioning System (GPS).

Question. Provide for the record, a breakout of all costs (1989 and 1990) for Armed AHIP, Air-to-Air Stinger (ATAS), and Optical Improvement Program (OIP).

Answer.

[In millions of escalated dollars]

	Fiscal year—	
	1989	1990
Armed AHIP	0.0	28.1
Optical Improvement Program (OIP)	0.0	6.6
Air-to-Air Stinger (ATAS):		
Production Line	20.0	12.8
MWO	0.0	21.1

Fiscal Year 1989 funds for ATAS include $12.4 million for hardware and $7.6 million for nonrecurring costs.

Question. What is the procurement strategy for AHIP in fiscal year 1990 and the out years?

Answer. The AHIP procurement strategy currently calls for sole source, firm fixed price, single year procurement. The Program Manager is investigating the feasibility of a multiyear for the fiscal year 1992–1994 requirements.

GRISLY HUNTER

Question. The budget includes $9.9 million for the procurement of one "Grisly Hunter" aircraft. Describe this aircraft and its requirement and explain why this program was not forecast last year?

Answer. ———.

Question. What validated requirement exists for this program?

Answer. The Grisly Hunter program is in response to a validated CINCSOUTH statement of need (SON) submitted on 23 December 1986. The Defense Intelligence Agency validated this SON by memorandum to the JCS on 3 April 1987 and the JCS subsequently notified CINCSOUTH of their validation.

Question. What is the total quantity and cost of this program?

Answer. ——— nonrecurring engineering required to perform systems integration. The APA funds will purchase six objective systems including aircraft, mission equipment packages and the required processing and dissemination equipment?

Question. Where will the aircraft be located once deployed?

Answer. ———.

Question. What is the procurement strategy and what candidate aircraft and sensor systems are available.

Answer. After successful completion of the demonstration phase, six systems (aircraft and sensors) will be procured competitively. Aircraft which might satisfy the Grisly Hunter Requirement include the CASA 212, PBN Defender, Boeing Dehaviland DASH 8 and the Beech 1900 to name a few. Candidate Infra-red sensors include the Westinghouse and Texas Instrument FLIRS's.

Question. Your statement says that this procurement will be based on the successful completion of the demonstration program. Describe this program and tell us the milestones.

Answer. The demonstration will be conducted in two phases. Phase I will be a 45 day proof-of-principle test to validate system capabilities and verify that the system responds to the CINC Statement of Need. Phase II will be a 90 proof-of-concept evaluation of the system in a low intensity conflict environment.

The Grisly Hunter demonstration phase milestones are as follows.

(1) Government acceptance of demonstration system: 27 May 89.

(2) Government conducted engineering/operational evaluation at A.P. Hill: 12 Jun 89–28 Jul 89.

(3) OCONUS Deployment/Theater Operational Evaluation: 9 Jul 89–15 Oct 89.

(4) IPR: 16 Oct 89.

(5) Extended OCONUS Utilization: 17 Oct 89–Oct 91 (Includes use as P3I test bed).

Question. Where will the "ground exploitation station for data analysis" be located?

Answer. The ground exploitation station will be located where tactically required by the CINC. In this case, the ground exploitation station will be located at ———.

Question. What is the cost of this station and where is it included in the budget?

Answer. The cost of the ground exploitation station is estimated at $2.0 million and is funded in the Grisly Hunter APA line.

Question. How do you know that the location of the station is where it is most likely to be needed?

Answer. The location of the exploitation station is a tactical decision that will be made by the CINC and his Staff.

Question. What is the relationship between this program and other reconnaissance and surveillance systems?

Answer. Grisly Hunter will be interoperable with other sensor systems in CINCSOUTH and capable of cuing and cross-cuing other theater intelligence collection assets.

Question. Why is this an Army program rather than an Air Force program?

Answer. The decision to make Grisly Hunter an Army program was made at JCS and OSD.

SPECIAL OPERATIONS FORCES AIRCRAFT

Question. Why are 11 MH-60Ks funded on a separate line in the P-1 instead of with the other SOF aircraft?

Answer. Program Budget Decision (PBD) 100 provided funds for an additional 22 UH-60A airframes for Special Operations Aircraft (SOA) modifications and directed that these funds be placed in a separate line (breaks out Special Operations Forces (SOF) funds which allows the Office of the Assistant Secretary of Defense-Special Operations/Low Intensity Conflict (ASD-SO/LIC) the ability to monitor these funds).

Question. Which aircraft in your current program are there at the initiative of OSD or the CINC's rather than the Army?

Answer. The Army has agreed to provide all SOF helicopters in our current program (51 MH-47Es, 23 MH-60Ks). In May 1984 the Chiefs of Staff of the Army and Air Force agreed that SOF helicopter support should be provided by the Army (this would require 51 MH-47Es, and 23 MH-60Ks). In July 1987, the Under Secretary of the Army and Vice Chief of Staff of the Army agreed to expand the CH-47 fleet from 436 helicopters to 472 to accommodate this agreement (provides enough CF-47 airframes for the Army to do the SOF medium lift mission).

Question. What is the deployment plan for all aircraft in your current program?

Answer. We plan to base 27 MH-47Es at Fort Campbell, KY, 8 at Hunter Army Airfield, GA, and 16 at Tulsa, OK. We are studying several operations concerning the distribution of the MH-60Ks: (1) Base all 23 MH-60Ks at Fort Campbell, KY or, (2) Base 5 at Tulsa, OK, 5 at Hunter Army Airfield, GA, and 13 at Fort Campbell, KY.

Question. Last year the procurement cost for this program went from $481 million to $540 million. What are your current estimates and what accounts for the change?

Answer. The total cost (including procurement and research and development costs) is $403.4 million for the MH-60K and $742.62 million for the MH-47E. The research and development total remains at $235 million. Procurement costs have increased to $911.02 million due to the $394 million increase for 34 additional MH-47Es. Taking into account this increase and the $18.5 million reduction in FY 1989 APA, program procurement costs have remained proportional to last year's estimate.

Question. Last year the estimated program unit cost was $18.9 million for the MH-60K and $19.9 million for the MH-47E excluding the cost of the airframe. What are your current estimates?

Answer. Our current estimated program unit costs for the MH-47E/MH-60K are $14.56 million and $17.50 million, respectively. The disparity between last year's and this year's estimate is due to (1) amortizing RDTE costs over 51 versus 17 MH-47E airframes and (2) reduction of $18.5 million from the MH-60K line.

Question. The Committee has been urging the Army to reduce the cost of this program and report periodically on progress. What have you done and why have no reports been submitted?

Answer. We are working with the contractors to definitize the MH-60K/MH-47E prototype contracts. We expect to award letter contracts for long lead items with 16 MH-47Es and 11 MH-60Ks in April, 1989 as well as production line setup contracts for these aircraft. These will be firm fixed price type contracts. We expect to achieve some savings by combining long lead awards, allowing vendors to bid on more items. In September 1989, we expect to award a fully negotiated production contract to Boeing for 5 MH-47Es with an option for 11. Upon receipt of fiscal year 1990 funds, we will award a production contract for 11 MH-60Ks with an option for 11. A should cost board has been formed to evaluate both the MH-47E and MH-60K proposals. This board will incorporate could cost aspects to assure we get the best possible price for these helicopters. Reports will be submitted as soon as negotiated/definitized cost data becomes available.

Question. The prototype MH-47E was to be delivered in May 1989 and the prototype MH-60K was to be delivered in June 1989. Each delivery was to be followed by 18 months of testing. Will these milestones be achieved? If not, please explain.

Answer. The prototypes (MH-47E/MH-60K) were never scheduled to be "delivered" in May/June 1989. Final assembly of the prototypes, wherein required SOF structural modifications are completed and the prototypes reassembled, will occur in May (MH-47E) and June (MH-60K). The integrated avionics subsystem (IAS) will then be installed. Approximately 18 months of formal prototype testing will begin in October 1989 for the MH-47E and March 1990 for the MH-60K. The prototypes are on schedule.

Question. Production line setup was funded in fiscal years 1988 and 1989 for the MH-47E and in fiscal year 1989 for the MH-60K. Contracts were scheduled to be awarded last month. What were the amounts of those contracts and what types of contracts were used?

Answer. Award of these contracts has been delayed until the prototype contracts have been definitized. We expect that these contracts will be awarded in April 1989. These will be letter contracts (firm fixed price).

Question. What are your milestones for award of contracts for fiscal year 1988 and 1989 MH–47E long lead, fiscal year 1989 MH–60K long lead, and fiscal year 1989 MH–47E production?

Answer. We expect to award MH–47E/MH–60K long lead/production line setup contracts in April 1989. These contracts will combine fiscal year 1988 and fiscal year 1989 long lead funds. The MH–47E production contract (5 with an option for 11 helicopters) will be awarded in September 1989.

Question. What are the milestones for award of fiscal year 1990 contracts?

Answer. Our fiscal year 1990 milestones are as follows: October 1989: award the MH–60K production contract (11 with an option for 11 helicopters); November 1989: award MH–60K long lead for 11 helicopters, MH–47E production contract (exercise the option for 11), and long lead for 34 MH–47Es.

Question. Provide for the record the current testing and other program milestones for the MH–47E and the MH–60K.

Answer. Our current testing milestones are as follows:

	MH–47E	MH–60K
Prototype Testing:		
Ground Testing	October–December 1989	April–June 1989.
Contractor Flight Testing	January–July 1990	July 1990–February 1991.
Government Flight Testing	August–October 1990	March–May 1991.
Production Testing (using 1st production aircraft):		
User Test	February–June 1991	June–October 1991.
1,200 Hour Reliability Validation	February–June 1992	June–October 1992.

Other Program Milestones:

October 1990—Award MH–60K production contract (exercise 11 aircraft option).

November 1990—Award MH–47E production contract (final 10 helicopters).

Question. The $127.4 million budgeted for advance procurement includes funding for 10 MH–47E's to be procured in fiscal year 1992. Why is this violation of normal procedures proposed and how much is included for this purpose?

Answer. Buying the long lead time items for all 34 MH–47Es in fiscal year 1990 provides a substantial savings vice spreading out the long lead procurement over two years ($11.0 million). Because the MH–47E and MH–60K helicopters are very similar electronically, this acquisition strategy allows vendors to bid on equipment for 45 helicopters simultaneously (34 MH–47Es and 11 MH–60Ks). This will result in an economical buy, and is part of the actions we are taking to reduce costs as the Committee has been urging us to do.

$28.5 million is included for long lead items for the 10 MH–47Es to be procured in fiscal year 1992. If the long lead contracts are spread out over two years, however, $75.2 million will be required for 24 helicopters in fiscal year 1990 and $32.6 million will be required for 10 helicopters in fiscal year 1991.

AH-64 APACHE AIRCRAFT

Question. Are the fiscal year 1990 and 1991 budgets sufficient to procure 72 aircraft per year? If not, how much are they deficient?

Answer. AH-64 Funding Requirements:

[In millions of dollars]

	Fiscal year—	
	1990	1991
Reagan Budget:		
Proc.	723.8	676.5
Adv Proc.	90.0	80.0
72/yr MYP [1]:		
Proc	763.9	783.4
Adv Proc	90.0	80.0
Difference	40.1	106.9

[1] Funding for first two years of four year multiyear procurement.

Question. From the point of view of fielding schedule requirements, is not 60 per year a more workable program than 72 per year?

Answer. The fielding schedule can easily accommodate one additional aircraft per month (6 vs. 5).

Question. What provision will be included in the multiyear contract to enable the government to benefit from lower unit costs resulting from prospective foreign military sales?

Answer. An option quantity clause to increase the multiyear quantity by up to 25% is included in the multiyear request for proposal. The contractors proposal currently provides for lower unit costs to a point in time. The Army is in the process of negotiating both what the exact cost and point in time will be.

Question. The Army has started a Multi-Stage Improvement Program (MSIP) for Apache. When will these changes be made to the production aircraft and how are these changes accommodated in the proposed multiyear contract?

Answer. MSIP production changes will begin in FY 1993 with low level lead funding required in FY 1992. Appropriate clauses which allow for the incorporation of MSIP into the proposed multiyear contract will be incorporated through the ECP process.

CH-47 AIRCRAFT

Question. What safety improvements are being considered as part of the second multiyear which starts in fiscal year 1989 and how much will these add to the cost of the aircraft?

Answer. The following changes were incorporated as safety improvements to the CH-47D at the time of award of the second multiyear:

a. Single Handle Cargo Hook Release System.
b. Transmission Lubrication/Finger Jet Screens.
c. Aft Pylon Clamshell Door Latch Improvements.
d. Hook Release Button Improvements.
e. Solid Cross Shaft Bolts.

Other improvements are being considered and may be added to the multiyear contract by modification. They include:

a. Single Piece Cross Shaft.
b. Control System Fire Hardening and Smoke Control.
c. Flight Data Recorder.
d. Fire Detection and Suppression Systems.
e. Aft Pylon Area Control Hardening and Relocation.
f. Relocation of Advance Flight Control System Switch.

ECP No. and Title	Nonrecurring	Recurring
16R1—Single Handle Cargo Hook Release	$170,023	(1)
78R2—Transmission Lubrication/Finger Jet Screens	180,926	[2] $169,482
82R1—Aft Pylon Clamshell Door Latch	43,832	[2] 1,782
113R1—Hook Release Button Ring Guard	28,527	[2] 26,756
143—Improved Engine Combiner Transmission Cross Shaft	14,328	(3)

[1] Nonrecurring paid for under Multiyear Procurement (MYP) I DAAJ09-85-C-A005. Recurring under MYP II not separately identified.
[2] Nonrecurring paid for under MYP I contract DAAJ09-85-C-A005. The Multiyear II Contract DAAJ09-85-C-A010 paid for recurring cost only.
[3] Nonrecurring under MYP I. Recurring not separately priced under MYP II.

Question. Last year, authorization and appropriation cut your budget by $10 million. What was the specific impact of that reduction, since 48 aircraft are still being modified?

Answer. The reduction of $10 million in fiscal year 1989 had the following impacts:

a. The elimination of one cycle of publications, resulting in a decreased maintenance capability ($3.0 million).

b. Engineering Change Proposal funds cut, resulting in some engineering changes being slipped to next year (i.e., Flight Data Recorder) ($2.0 million).

c. Under funding of the "Over and Above" contract line, which is used to account for differences in configuration and condition of individual airframes. This line allows the government to assume risks of differences rather than pay Boeing Helicopters directly to do so ($2.8 million).

d. A reduction in government furnished material, such as common hardware, to the assembly line—this reduction has not been corrected, but must be in order to keep the line moving. The deficit is $2.2 million and will have to be funded from other sources as directed by the Congress.

Question. Why has the procurement objective for the CH-47D changed from 436 to 472?

Answer. In July, 1987 the Under Secretary and Vice Chief of Staff of the Army agreed to increase the procurememt objective by 36 aircraft to meet the dictates of Initiative 17 (provides sufficient CH-47 airframes for the Army to take over the Special Operations Forces (SOF) medium lift mission from the Air Force).

OV-1D SURVEILLANCE AIRCRAFT

Question. Last year, the Congress appropriated $6.2 million for the first OV-1 Multistage Improvement Program (MSIP) aircraft modification. The conferees directed that all appropriate training, publications and provisioning be included and that, if funds were insufficient, to reprogram. What is the status of the fiscal year 1989 OV-1 program?

Answer. In accordance with Congressional language, the Army is reprogramming the required APA funds to procure one aircraft modification along with all publications, drawings, training, and provisioning.

Question. Will a reprogramming be required to carry out the fiscal year 1989 program? If so how much and from what sources?

Answer. An FY 1989 reprogramming was required, in the amount of $9.9 million and was taken from the following sources: AH-64, $2.2 million, RU-12 Mods, $3.5 million; UH-60, $2.2 million, SPARES, $2.0.

Question. Last year, your budget funded $12.2 million for the OV-1 modification program. Why is essentially the same program now estimated to cost $16.1 million.

Answer. The prior FY 1989 budget procured only publications and provisioning; the extra effort will procure all publications, drawings, training, and full provisioning.

Question. Are activities relating to testing and evaluation of flight data recorders and engines being done with R&D instead of procurement funds as directed last year? If not, why not?

Answer. IAW Congressional language, Flight Data Recorder/L-704 Engine funding, relating to testing and evaluation activities, has been transferred to the RDT&E appropriation, as follows:

a. Funding for L-704 engine calibration, qualification, and certification has been transferred to the RDT&E Engine Component Improvement Program (PE 23752). ($2.2 million in FY 1989).

b. Funding for aircraft airworthiness certification, development of new performance data, flight data recorder engineering, and sensor qualification/integration has been transferred to RDT&E (PE 63801). ($11.4 million in FY 1990).

Question. What is the procurement strategy for the OV-1 MSIP and what kind of contracts will be used?

Answer. In FY 1989, a firm fixed price contract will be awarded to the original aircraft manufacturer for one aircraft modification (preproduction verification/validation), publications, drawings, training, and full provisioning. In FY 1990, a firm fixed priced production (limited urgent) contract will be awarded for one production aircraft modification with an option in FY 1991; in FY 1992; a firm fixed price production contract will be awarded with options in the following year to complete the procurement objective.

Question. The OV-1 MSIP has called for 45 aircraft to be modified. Has this quantity changed, and if so why?

Answer. The AAMP set the acquisition objective at 45. But, as the Army began preparing the President's FY 1989 budget, funds were insufficient to meet this objective. Based on available funds, a procurement objective of 34 MSIP aircraft and 1 preproduction prototype model was established.

Question. What are the testing, contract, and other milestones for the OV-1 MSIP program?

Answer. The testing milestones for the OV-1D MSIP are as follows.

Fiscal year 1989: (1) Prototype Aircraft; (a) Product Improvement Validation Testing (Joint Government/Contractor), May 89; (b) TRADOC User Evaluation (Modified OT), June 89; (c) TEMPEST

Testing, 4 Qtr fiscal year 89; (2) L–704 Engine; Engine Certification (calibration)/Model Qualification Testing, 4 Qtr fiscal year 89.

Fiscal year 1990: (1) L–704 Engine; (a) Engine Ground Vibration Testing October 90; (b) Flight Testing, 1 Qtr fiscal year 90; (2) Flight Data Recorder; (a) Ground/Electro-Magnetic Compatibility Testing, July 90; (b) Flight Testing, August 90.

Fiscal year 1991: Pre-Production Aircraft—Validation Testing, 2 Qtr fiscal year 91.

Other OV–1 MSIP milestones are as follows:

Pre-production contract award, 4Q89; L–704 Engine airworthiness certification and new performance data, 1Q90; Production (limited urgent) contract award, 4Q90; Production (limited urgent) option, 1Q91.

Question. In fiscal year 1990, the first procurement funding is budgeted for upgrades to the UPD–7 radar. What changes are being made?

Answer. The UPD–7 modification is to enable logistical supportability of the radar system by replacing obsolete component and circuitry with newer, more supportable technology.

Question. Has the UPD–7 radar modification program been downscoped since last year? If so, what changes have been made and why?

Answer. Downscoping of the UPD–7 modification is required to remain within the Army budget for this program and is accomplished by:

a. Reduction in quantity, from 49 to 38, to coincide with the aircraft procurement objective.

b. Prioritizing requirements and eliminating lower priority modifications to meet funding constraints.

Question. What are the current testing, contract, and other milestones for the UPD–7?

Answer. The testing milestones for the UPD–7 are as follows:

Fiscal year 1989: Contract Award for 3 First Article Test Radar Systems 4 Qtr fiscal year 89.

Fiscal year 1990: Bench Integration, December 90.

Fiscal year 1991: Tower Test, January 91; Bench Validation, February 91; EMI, February 91; Environmental Test, March 91; Reliability Test, May 91; EMC, May 91; Flight Test, June 91.

Other UPD–7 milestones are as follows:

Production Contract Award, 3Q89; Production First Article Test, 2Q90; Production Option, 4Q90; Production Option, 2Q91.

Question. What is the total cost of the UPD–7 program? Provide a complete profile for the record, including quantities.

Answer. Total program costs for the UPD–7 modification are, as follows:

	In millions
Production contract/first article testing (3 units)	**$11.3**
Production option (12 units)	**7.4**
Production option (9 units)	**5.1**
Production option (15 units)	**8.5**
Total	**32.3**

Question. Are you aware of a contractor proposal to accelerate the OV–1 MSIP and buy out the program in 1992 instead of 1995?

What are your views on such a proposal and what would be the cost impact in fiscal years 1990 and 1991?

Answer. The Army was briefed by officials from Grumman on their proposed accelerated MSIP program. They stated that savings of approximately $10.4 million might be realized by accelerating the program.

Grumman developed their proposal and presented it at HQDA in mid-January 1989 after submission of the President's Budget. The Army evaluated this proposal, based on the merits of possible cost savings and earlier FUE dates for fielding the MSIP aircraft. In order to adopt this or any other accelerated program, it would require making adjustments to the overall APA account to stay within required APA ceilings. The program as proposed by Grumman would require an additional $5.4 million in FY 1989, $15.6 million in FY 1990, and an additional $2.8 million in FY 1991.

Question. What does the Army think of the Grumman proposal to accelerate the OV-1 MSIP program.

Answer. The Army does not support the Grumman proposal as presented in January 1989. Analysis indicates this proposal inadequately addresses training, provisioning and publication requirements to accommodate the proposed accelerated production, and thus is unsupportable. The Army continues to support the OV-1 MSIP program.

UH-60 BLACK HAWK

Question. The budget includes $206.1 million in regular procurement and $180.3 million in advance procurement in fiscal year 1990 to procure 72 UH-60 BLACK HAWK aircraft. However, the budget justification indicated that this funding level is not sufficient to procure the indicated number. Why is the budget underfunded?

Answer. Funds for the programmed buy of 83 UH-60A airframes in each budget year were divided between two lines.

	Fiscal year—	
	1990	1991
UH-60 (AA0005)	386.4(72)	412.7(72)
MH-60 (A03407)	71.3(11)	68.5(11)

When the funding for the airframes for the MH-60K was segregated into its new budget line it was over resourced by about $15 million each year at the expense of the UH-60 budget line. A budgetary technical adjustment is required to properly array the funding stream but funds are adequate to procure the requested 83 airframes each year.

Question. By how much is it underfunded?

Answer. In order to procure 83 UH-60 airframes we need to adjust the funds currently in the UH-60 and MH-60 lines as discussed above.

Question. What impact does the funding level have on the current airframe multiyear contract? What variation in quantity provision is included in that contract?

Answer. The multiyear airframe contract requires the procurement of 72 aircraft in fiscal year 1990 and 36 aircraft in fiscal year 1991. The contract contains options which allow for the procurement of up to 24 additional aircraft in fiscal year 1990 and up to 48 additional aircraft in fiscal year 1991. The contract contains a special clause that allows the reduction of up to 10 aircraft in fiscal year 1990 if the Gramm/Rudman Act is exercised. The airframe multiyear contract can be executed in both fiscal years 1990 and 1991 by using both the UH-60A and MH-60K funds.

Question. The BLACK HAWK will go from an A configuration to an L configuration in fiscal year 1990. What changes are included and how much do they add to the cost of each aircraft?

Answer. The UH-60L model refers to the current UH-60A aircraft with a more powerful engine (T701C in lieu of T700) and an improved durability main gear box. The T701C engine was selected on a competitive basis in fiscal year 1988 with first delivery for test purposes in January 1989. The T700 engine is no longer being produced, so the marginal cost of the T701C engine is not determinable. It should be noted, however, that the average unit cost of the engines procured on Multiyear Procurement III (MYP III) (fiscal years 1989-1993) for T701C and T401C engines is actually 13 percent on the MYP II (fiscal years 1986-1988) contract (T700, T701, and T401 engines). The estimated cost of the airframe changes necessary to accommodate the T701C engine is estimated as 27,000 dollars per aircraft and the increased cost of improved durability main gear box is 10,000 dollars per aircraft. Production incorporation is currently scheduled for October 1989.

Question. Are these changes included and priced in the current airframe multiyear contract? If not, how will they be made?

Answer. The cost of the airframe changes are not currently included in the airframe multiyear contract. Engineering Change Proposals (ECPs) have been received and will be incorporated as contract modifications. Necessary funding is programmed.

Question. You also plan to go to an M configuration in fiscal year 1992. What changes are included and what do they add to the cost of the aircraft?

Answer. Your reference to an M configured UH-60 refers to the proposed multi-stage improvement program (MSIP). This program is currently under review by the Army leadership. We are closely scrutinizing each proposed component of the MSIP to determine what is really needed. The final configuration of the MSIP, if any, is undetermined. Cost will vary accordingly, from no change up to an estimated maximum recurring cost of $550,000 dollars per airframe.

Question. Last year, you discovered a problem with electromagnetic interference (EMI) with the BLACK HAWK. Describe this problem and what you plan to do to fix it.

Answer. Electromagnetic Vulnerability (EMV) testing of the UH-60A BLACK HAWK began in April 1986. Anomalies were found that warranted the development of an Engineering Change Proposal (ECP) to provide Electromagnetic (EM) hardening on a system to a level of 200 volts per meter. The ECP was for the design, fabrication, and demonstration by test, of a set of modifications that would eliminate all the adverse system responses to EM radiation. During testing of UH-60A BLACK HAWK in May 1988, a hydraulic system Safety-of-Flight concern arose, and the ECP was subdivided into two parts: Part I, identified as ECP 384, addresses the hardening to the hydraulic system, and Part II, identified as ECP 384 revision, addresses the remaining system hardening.

Various techniques used to achieve the necessary EM hardening include the following:

Filter Line Wire.
Cable Bundle Shielding.
Aircraft Harness Filter Pin Connectors.
Improved Bonding.
Component Redesign.
Individual Wire Shielding.
Metallic Shielding.

Production incorporation of ECP 384 (Phase I) began in October 1988, with retrofit commencing in January 1989. Phase I will be completed by the end of fiscal year 1989. Production incorporation of the ECP 384 revision (Phase II) is scheduled to occur in June 1990, with retrofit beginning three months later.

Question. How much is included in the fiscal year 1990 and 1991 budget for EMI work and what will be the total cost of this program?

Answer. The procurement of the EME configuration changes for fiscal year 1990 and fiscal year 1991 are provided below. These costs include both procurement of hardware and installation. The total estimated cost for EME for all 2,253 UH-60 aircraft is $174 million.

Fiscal Year 1990:	
Production	$4.6
Retrofit	30.7
Fiscal Year 1991:	
Production	6.1
Retrofit	19.2

UH-1 MODIFICATIONS

Question. The budget includes $9.6 million for UH-1 HUEY modifications. Since the Aviation Modernization Master Plan calls for retiring the HUEYs, why are we spending money for modifications at this time?

Answer. The $9.6 million fiscal year 1990 budget line for UH-1 MODS contains $3.8 million for UH-1 aircraft modifications, and $5.8 million for UH-1 Flight Simulator Computers. The retirement program delineated in the Army Aviation Modernization Plan (AAMP) is a gradual drawdown of assets leaving a large number of UH-1 helicopters, currently 1,073, in the fleet for at least 15 years. The UH-1s that are not retired require, at a minimum, improvements that provide supportaiblity, sustain current readiness rates, and improve safety for the time they are in service.

Question. What specific modifications are being pursued and what is the total cost for each one?

Answer. The $9.6 million in the fiscal year 1990 budget will be used for:

UH-1 Airframe Modifications.—$3.8 million will procure Improved Particle Separators (IPS) for approximately 227 UH-1s. The

IPS is a highly efficient particle separator capable of 93 percent separation efficiency compared to only 32 percent that the current unit achieves. By reducing the amount of sand and dust that is ingested in the turbine engine compressor, erosion is significantly reduced resulting in fewer compressor stalls and lower operating and repair costs. The IPS is a SAFETY improvement with estimated payback in 18-24 months or sooner in very high sand and dust areas.

UH-1 Flight Simulator Computers.—$5.8 million will be spent on replacing the 20 year old mainline computer that is quickly becoming logistically nonsupportable. Repair parts are expensive and are procured from a single source, a computer parts clearing house. Downtime is excessive and memory capacity is filled. The upgrade program will use micro-computers that will allow each device to be split into two pairs of two cockpits adding flexibility to the training program. Seven devices will be upgraded with the $5.8 million.

Question. How many UH-1s are currently in the fleet and how many will receive modification?

Answer. The UH-1 fleet consists of 3,125 aircraft. Currently no more than 1,073 aircraft will receive modifications unless SAFETY is involved.

Question. Have these modifications been approved by a validated requirement document? Is there an approved plan in place?

Answer. The UH-1 modifications have been approved as individual Product Improvement Programs. There is not a separate requirements document. There is not a separate modernization plan in place for the UH-1. The AAMP suffices.

Question. The Army Aviation Modernization Plan states that a decision will be made this fiscal year to either have a Service Life Extension Program (SLEP) for 1,073 UH-1s remaining after the year 2007 or to replace them with UH-60s or an NDI aircraft. Has such a decision has been made? If not, when will it be made?

Answer. No decision has been made and no firm date has been established for making that decision.

Question. If there is a SLEP for the UH-1 what could it include and what would it cost?

Answer. There has been no decision to SLEP the UH-1. The U.S. Army Aviation Systems Command (AVSCOM) is just beginning the process of identifying potential SLEP needs. It would be premature to provide any configuration or cost data at this time.

Question. What NDI aircraft would be considered for replacing the UH-1?

Answer. Any Nondevelopmental Item (NDI) aircraft acquision would most likely be procured competitively against a performance specification and requirement document. It would be premature to delineate potential NDI candidates at this time.

Question. UH-1s were procured as long ago as 1958. What do you consider to be the airframe life of the UH-1

Answer. UH-1s have been procured since 1958 but all models older than 1962, except the UH-1M (converted "C" models) which is scheduled to be retired in 1990, have been retired. The oldest UH-1 HUEY in the fleet was built in 1962. The oldest helicopters will be the first retired. If the UH-1 goes through a SLEP, there are more than enough (approximately 1,500) aircraft in the 1969-

1976 model years to meet potential requirements. The AAMP average fleet age for lift and cargo helicopters is considered to be 30 years. It should be noted that airframe structural parts are replaced during overhaul if corrosion or other damage is found.

[CLERK'S NOTE.—End of questions submitted for the record.]

TUESDAY, APRIL 11, 1989.

PROCUREMENT OF WEAPONS AND TRACKED COMBAT VEHICLES, ARMY

WITNESS

BRIGADIER GENERAL WILLIAM S. CHEN, ASSISTANT DEPUTY FOR SYSTEMS MANAGEMENT, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION, DEPARTMENT OF THE ARMY

INTRODUCTION

Mr. **MURTHA**. The committee will come to order.

This afternoon, the Committee considers the budget request for the Procurement of Weapons and Tracked Vehicles, Army appropriation. The budget estimate for this appropriation is $2,745,000,000 in fiscal year 1990 and $3,002,100,000 in fiscal year 1991. This compares with an appropriation of $2,820,400,000 for the current year.

The principal witness is Brigadier General William S. Chen, Office of the Assistant Secretary of the Army for Research, Development, and Acquisition. General Chen, we welcome you back before the Committee. Your prepared statement will be made a part of the record. Please summarize it and then we will proceed to questions.

SUMMARY STATEMENT OF GENERAL CHEN

General **CHEN**. Thank you, sir. The Weapons and Tracked Combat Vehicle appropriation buys our Army ground combat equipment. The ground combat equipment is broken out into the categories of armor, artillery, infantry, and small arms.

Within armor is included our Abrams series tank, the improved recovery vehicle, armor training devices, and modifications to the fleet of fielded Abrams tanks. The artillery weapons systems include the M119 105 millimeter towed Howitzer and the self-propelled M109 155 millimeter Howitzer Improvement Program. Infantry weapon systems are made up of the M2/M3 Bradley Fighting Vehicle, with its modifications and its 25 millimeter cannon, along with the 120 millimeter mortar.

Small arms encompasses six important procurements: the M9 pistol, the MK-19 grenade launcher, the squad automatic weapon, the M16A2 rifle, the M16A1 rifle modifications, and the sniper rifle.

I would like to highlight our fiscal year 1990 budget request. The WTCV appropriation totals $2.745 billion, making up 19 percent of the total Army procurement appropriation for fiscal year 1990. The

Abrams and the Bradley are the preponderance of the WTCV appropriation at approximately 70 percent.

Highlights of the fiscal year 1990 WTCV budget request include the initiation of a five-year multiyear procurement of Bradley at 600 per year, continued production of the M1A1 under a multiyear strategy and procurement of long-lead items for the M1A2 Abrams tank, continued production of the M119 Light Howitzer and the 120 millimeter mortar, continued modifications for the M109 Howitzer Improvement Program, and modification for the Bradley and Abrams, and continued procurement of the six small arms systems. Four of the six small arms systems, the 9 millimeter pistol, MK19 grenade launcher, squad automatic weapon, and the M16A2 rifle are multiyear contracts. Finally, although there is no request in fiscal year 1990 for the Improved Recovery Vehicle (IRV), in fiscal year 1990, we will buy 61 Improved Recovery Vehicles using fiscal year 1988–89 funds.

I would like to introduce next to me Lieutenant Colonel Colbert Gautreaux, Chief of our Ground Combat Division, and we would like to open up now for your questions.

Mr. MURTHA. Thank you, General.

[The statement of General Chen follows:]

STATEMENT OF BRIGADIER GENERAL WILLIAM S. CHEN

CHAIRMAN, MEMBERS OF THE COMMITTEE, I AM BRIGADIER GENERAL WILLIAM S. CHEN, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT AND ACQUISITION. MY STATEMENT WILL ADDRESS THE PRESIDENT'S FY90 BUDGET REQUEST FOR WEAPONS AND TRACKED COMBAT VEHICLES (WTCV). THE ARMY WTCV PROCUREMENT REQUEST FOR FY90 IS $2.745B.

I WOULD NOW LIKE TO ADDRESS THE WTCV FUNDING REQUEST IN MORE DETAIL. TRACKED COMBAT VEHICLES INCLUDE THE ABRAMS TANK, BRADLEY FIGHTING VEHICLE, TRACKED COMBAT VEHICLE MODIFICATION, AND ASSOCIATED SUPPORT EQUIPMENT AND FACILITIES.

THE ABRAMS TANK REMAINS THE CORNERSTONE OF THE ARMY'S PROGRAM TO PROVIDE MODERN EQUIPMENT TO THE SOLDIER IN THE FIELD. THE TANK IN PRODUCTION TODAY IS THE M1A1 EQUIPPED WITH THE 120MM ARMAMENT SYSTEM. FIRST INTRODUCED TO THE FIELD IN 1986, THE M1A1 HAS RECEIVED THE SAME HIGH DEGREE OF ACCEPTANCE BY THE SOLDIER AS THE OLDER M1. TODAY, WE ARE FIELDING M1A1 TANKS WITH IMPROVED SURVIVABILITY FEATURES. THESE TANKS ARE BEING DELIVERED TO SOLDIERS ASSIGNED TO UNITED STATES ARMY, EUROPE. SUBSEQUENT TO THIS EQUIPMENT HAND-OFF, OLDER M1 TANKS ARE NOW BEING DISPLACED FROM EUROPE FOR RE-DISTRIBUTION TO ACTIVE COMPONENT AND RESERVE COMPONENT FORCES IN A TANK FLEET MANAGEMENT PROGRAM WHICH ALWAYS PROVIDES THE NEWEST, MOST CAPABLE EQUIPMENT TO SOLDIERS IN THE FIRST-TO-FIGHT UNITS. THE FY90 BUDGET REQUESTS 448 M1A1 TANKS FOR THE ARMY ALONG WITH PROCUREMENT OF LONG LEAD ITEMS FOR M1A2, WHILE THE FY91 BUDGET IS FOR THE FIRST INCREMENT OF 261 M1A2 TANKS. BETWEEN THE TWO YEARS, WE WILL TRANSITION FROM OUR CURRENT MULTIYEAR CONTRACT TO A NEW SERIES OF CONTRACTS FOR THE CHASSIS, ENGINE, AND FIRE CONTROL FOR THE ABRAMS TANK. THE M1A2 WILL BUILD ON THE PROVEN CAPABILITIES OF THE M1A1--120MM CANNON, NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) OVER-PRESSURE AND MICRO-CLIMATE COOLING SYSTEM, AND HIGH AGILITY AND MOBILITY-- BY ADDING A SUITE OF FIGHTABILITY ENHANCEMENTS THAT WILL GIVE THE ARMORED CREWMAN OF TODAY THE ABILITY TO FIGHT OUT-NUMBERED ON THE MODERN BATTLEFIELD. THESE ENHANCEMENTS, UNDERGOING DEVELOPMENT TODAY AS THE ABRAMS BLOCK II IMPROVEMENT PROGRAM, INCLUDE THE FOLLOWING:

- DISTRIBUTED DATA AND POWER ARCHITECTURE
- SURVIVABILITY ENHANCEMENTS
- IMPROVED COMMANDER'S WEAPON STATION
- COMMANDER'S INDEPENDENT THERMAL VIEWER
- CARBON DIOXIDE LASER RANGE FINDER
- POSITION/NAVIGATION EQUIPMENT
- DRIVER'S THERMAL VIEWER
- INTERVEHICULAR INFORMATION SYSTEM

BECAUSE THE TOTAL DOD TANK PROGRAM IS REDUCED TO THE MINIMUM SUSTAINING RATE UPON COMPLETION OF THE CURRENT MULTIYEAR, THE TANK PROGRAM AS PROPOSED IN THE BUDGET MAKES PROVISION FOR THE LAYAWAY OF THE DETROIT ARSENAL TANK PLANT IN 1991. WERE WE TO SEE ADDITIONAL HEAVY VEHICLE PRODUCTION FROM OTHER SOURCES, SUCH AS FOREIGN MILITARY SALES OR INCREASED RESOURCING FOR TANK PRODUCTION, THIS COULD BE AVOIDED. ABSENT THE ADDED REQUIREMENT FOR WORKLOADING, AS AN INTERIM PRE- CAUTIONARY MEASURE, WE HAVE BUDGETED FOR THE LAYAWAY AND MAINTENANCE OF THIS FACILITY.

THE M2/M3 BRADLEY FIGHTING VEHICLE SYSTEM (BFVS) SATISFIES BOTH THE INFANTRY AND CAVALRY FIGHTING VEHICLE REQUIREMENTS FOR THE FORCE. IT IS THE MOST ADVANCED INFANTRY FIGHTING VEHICLE IN THE WORLD TODAY. THE BRADLEY PROVIDES THE COMPATIBILITY NEEDED TO OPERATE WITH OTHER MEMBERS OF THE COMBINED ARMS TEAM AS THEY MANEUVER AND FIRE TO DESTROY THEIR TARGETS. IT ALLOWS OUR MECHANIZED FORCES TO MANEUVER AND FIGHT DURING DAY OR NIGHT COMBAT OPERATIONS, PROVIDING FIRES WHILE ON THE MOVE. A TOTAL OF 4267 VEHICLES HAVE BEEN DELIVERED AS OF MARCH 1989 AND FIELDING IS ON SCHEDULE. AS OF DECEMBER 1988, 33 BATTALIONS HAVE BEEN EQUIPPED WITH THE BRADLEY, INCLUDING FOUR IN THE ARMY NATIONAL

GUARD. IN FY90 WE ARE REQUESTING 600 VEHICLES. FY90 IS THE ELEVENTH YEAR OF PRODUCTION FOR THE BRADLEY AND WILL BE THE FIRST YEAR OF A FIVE YEAR MULTIYEAR PROCUREMENT.

THE M2A2/M3A2, WITH SURVIVABILITY IMPROVEMENTS, WILL WEIGH ABOUT 16,000 POUNDS MORE THAN THE BASIC M2/M3 BRADLEY GIVING IT A TOTAL WEIGHT OF ABOVE 66,000 POUNDS. THE ARMY WILL REPLACE THE CURRENT 500 HORSEPOWER POWERTRAIN (ENGINE/TRANSMISSION) WITH A 600 HORSEPOWER POWERTRAIN BEGINNING IN MAY 1989 TO MAINTAIN THE MOBILITY PERFORMANCE OF THE M2A2/M3A2 BRADLEY. THE POWERTRAIN IMPROVEMENTS WILL INCREASE RELIABILITY AND MAINTAINABILITY WHILE PROVIDING THE POWER NEEDED TO INCREASE AGILITY AND MOBILITY ON THE BATTLEFIELD.

THE FY90 BRADLEY MODIFICATION PROGRAM FUNDS CONTINUED RETROFIT OF THE VEHICLE WITH THE HIGH SURVIVABILITY IMPROVEMENTS, BEGINS RETROFIT OF THE 600 HORSEPOWER POWERTRAIN, AND PROVIDES EYE PROTECTION AGAINST LASERS THROUGH THE ADDITION OF FILTERS TO THE TOW MISSILE SYSTEM VISUAL MODULE AND UNITY WINDOW.

THE BUDGET SUBMIT FOR THE 25MM BUSHMASTER AUTOMATIC CANNON, THE PRIMARY WEAPON OF THE BRADLEY FIGHTING VEHICLE SYSTEM, IS FOR $18.7M IN FY90 TO ACQUIRE 560 GUNS. FY90 IS THE LAST YEAR OF THE CURRENT MULTIYEAR CONTRACT ON THE BUSHMASTER. A FOLLOW-ON MULTIYEAR CONTRACT IS PLANNED TO BEGIN IN FY91.

THIS CONCLUDES THE TRACKED COMBAT VEHICLE PORTION OF WTCV. I WOULD NOW LIKE TO ADDRESS THE WEAPONS AND OTHER TRACKED VEHICLES WITHIN THE WTCV PROCUREMENT, WHICH INCLUDES THE M109 (155MM) HOWITZER, M119 (105MM) HOWITZER, RECOVERY VEHICLE, 120MM MORTAR, AND SMALL ARMS.

THE M109 (155MM) HOWITZER IMPROVEMENT PROGRAM (HIP) INCORPORATES THE RELIABILITY, AVAILABILITY, AND MAINTAINABILITY (RAM) IMPROVEMENTS OF THE HOWITZER EXTENDED LIFE PROGRAM AND SURVIVABILITY ENHANCEMENTS INTO A FULLY INTEGRATED SYSTEM. OTHER IMPROVEMENTS INCLUDE INCREASED RANGE FROM 23 TO 30 KM, ON-BOARD BALLISTIC COMPUTATION, LAND NAVIGATION SYSTEM, BUILT-IN TEST EQUIPMENT, AND NBC MICROCLIMATIC COOLING. THESE IMPROVEMENTS PROVIDE THE FIELD ARTILLERY THE CAPABILITY OF SURVIVABLE, SEMI-AUTONOMOUS OPERATIONS TO COUNTER THE MASSIVE FIRES OF THE SOVIET ARTILLERY. THE HIP PROGRAM IS A JOINT US/ISRAELI EFFORT THAT PROVIDED 6 U.S. AND 2 ISRAELI PROTOTYPES FOR EVALUATION IN 1988. LIMITED PRODUCTION BEGINS IN FY89 TO MEET AN EARLY FIELDING REQUIREMENT. PRODUCTION CONTINUES WITH $75.5M IN FY90 AND $179.6M IN FY91. A TOTAL OF 1700 HOWITZERS WILL BE MODIFIED TO PROVIDE ADEQUATE FIRE SUPPORT FOR OUR MECHANIZED AND ARMORED DIVISIONS.

THE FY90 BUDGET REQUEST OF $24.6M PROCURES 75 M119 (105MM) LIGHT HOWITZERS. THE M119 105MM LIGHT HOWITZER WILL BE USED BY THE LIGHT INFANTRY FORCES TO SATISFY REQUIREMENTS FOR EXTENDED RANGE, INCREASED RELIABILITY, AND LIGHT WEIGHT. THE LIGHT WEIGHT ENHANCES STRATEGIC DEPLOYABILITY AND BATTLEFIELD MOBILITY. ITS INCREASED RANGE AND RAM OVER THE OLD M102 WILL ALSO IMPROVE FIRES IN SUPPORT OF THE LIGHT DIVISIONS. INITIAL PRODUCTION IS OCCURRING IN THE UK TO MEET AN EARLY FIELDING OF THE 7TH INFANTRY DIVISION IN FY89. THE UK WORKSHARE IS THE EQUIVALENT OF 151 COMPLETE HOWITZERS, OR ABOUT 25% OF THE PROCUREMENT OBJECTIVE. PRODUCTION TO COMPLETE THE PROCUREMENT OBJECTIVE OF 548 HOWITZERS WILL BE ACCOMPLISHED AT WATERVLIET AND ROCK ISLAND ARSENALS. INITIAL ORDERS WERE PLACED AT THE ARSENALS DURING FY88. IN FY90 PRODUCTION WILL MOVE TOTALLY TO THE U.S. ARSENAL SYSTEM.

THE IMPROVED RECOVERY VEHICLE (IRV) IS A PRODUCT IMPROVEMENT TO THE CURRENT M88A1, WHICH IS A FULL-TRACKED, ARMORED VEHICLE UTILIZED FOR TRACKED COMBAT VEHICLE RECOVERY AND EVACUATION. THE IRV, OR M88A2, WILL SUPPORT M1 SERIES TANK BATTALIONS ONLY. AT 750 HORSEPOWER AND 56 TONS, THE M88A1 LACKS TRACTIVE POWER TO SAFELY TOW THE 70 TON M1A1 WITHOUT A SECOND M88A1 TO ACT AS A BRAKE VEHICLE. IMPROVEMENTS TO THE M88A1 INCLUDE A LARGER ENGINE, GREATER WINCHING AND HOISTING CAPABILITIES, ADDITIONAL WEIGHT, AND

INCREASED ARMOR PROTECTION. THE REMAINDER OF THE M88A1 FLEET WILL CONTINUE TO SUPPORT THE LIGHTER ARMORED VEHICLES OF INFANTRY AND ARTILLERY BATTALIONS. THE CONGRESSIONALLY DIRECTED SIDE-BY-SIDE TESTING WAS COMPLETED BETWEEN APRIL-JULY 1988 AND A DECISION WAS MADE IN DECEMBER TO CONTINUE FULL SCALE DEVELOPMENT WITH THE BMY CANDIDATE. THERE IS NOT A BUDGET REQUEST FOR FY90, HOWEVER, PREVIOUSLY APPROPRIATED RESOURCES FROM FY88 AND FY89 WILL BE ROLLED OVER INTO FY90 TO PROCURE 61 VEHICLES.

LAST YEAR, THE ARMY INDICATED AN INTENT TO REINSTATE A MORE AFFORDABLE 120MM MORTAR PROGRAM AND TO REQUEST PROCUREMENT FUNDING IN FY90. FUNDING IS REQUESTED IN FY90; HOWEVER, THE ARMY HAS BEEN UNABLE TO FUND THE 120MM MORTAR PROGRAM IN FUTURE YEARS TO THE EXTENT NECESSARY TO COMPLETELY REPLACE THE 4.2 INCH MORTAR. THE PROCUREMENT OBJECTIVE FOR THE 120MM MORTAR IS CURRENTLY FOCUSED ON THE FIELDING OF FORWARD DEPLOYED FORCES IN EUROPE AND KOREA PLUS THE 9TH INFANTRY DIVISION. ADDITIONAL FORCE PACKAGES WILL BE PROGRAMMED AS THEY BECOME AFFORDABLE. THE MODERNIZATION OF THE ARMY'S SMALL ARMS PROGRAM CONTINUES WITH THE SIXTH YEAR BUY OF THE M16A2 RIFLE WHICH INCORPORATES NEW SIGHTS, IMPROVED MUZZLE COMPENSATOR, AND A HEAVIER BARREL. THE BUDGET REQUEST OF $14.1M WILL PROCURE 32,800 M16A2'S IN FY90. AS THE M16A2'S ARE DISPLACED FROM FRONT LINE UNITS, THOSE WITH ADDITIONAL SERVICE LIFE WILL BE MODIFIED TO THE M16A2 CONFIGURATION. THE M16 MODIFICATION REQUEST IS FOR $4M IN FY90 TO PROCURE 21,586 MODIFICATION KITS.

PROCUREMENT OF THE 9MM HANDGUN, WHICH REPLACES THE .45 AND .38 CALIBER HANDGUNS IN THE ARMED FORCES, ENTERS ITS SIXTH YEAR. THE BUDGET SUBMISSION REQUESTS $7.5M FOR THE PROCUREMENT OF 34,696 WEAPONS IN FY90. COMPETITION FOR A FOLLOW-ON MULTIYEAR CONTRACT IS ON-GOING. SOURCE SELECTION FOR THE FOLLOW-ON CONTRACT WILL BE COMPLETED IN MAY 1989 AND WILL BE BASED ON THE TOTAL COST OF BRINGING ANOTHER WEAPON INTO THE SYSTEM. APPROXIMATELY 160,000 WEAPONS REMAIN TO BE PROCURED FOR THE SERVICES.

THE BUDGET REQUEST FOR THE SQUAD AUTOMATIC WEAPON (SAW) IS $8.7M IN FY90. THIS REQUEST WILL PROCURE 5932 WEAPONS. FY90 IS THE FOURTH YEAR OF A FIVE YEAR MULTIYEAR CONTRACT. THE "SAW" WILL BE ISSUED TWO PER SQUAD.

THE BUDGET REQUEST FOR THE 40MM AUTOMATIC GRENADE LAUNCHER IS $19.7M TO PROCURE 1476 WEAPONS IN FY90. THE 40MM AUTOMATIC GRENADE LAUNCHER PROVIDES A HIGH VOLUME OF FIRE AND DEFEATS LIGHTLY ARMORED VEHICLES OUT TO A RANGE OF 2200 METERS. IN SEPTEMBER 1987, THE NAVY AWARDED ITS SECOND CONTRACT FOR THE ARMY BRINGING TO 2061 THE NUMBER OF ARMY WEAPONS PROCURED UNDER NAVY ADMINISTRATION. PROGRAM MANAGEMENT TRANSITIONED TO THE ARMY IN JUNE 1988. THE ARMY AWARDED A FIVE YEAR, FOLLOW-ON, MULTIYEAR CONTRACT IN DECEMBER 1988.

IN ADDITION TO THE SYSTEMS ABOVE, WE HAVE REQUESTED $6.3M IN FY90 TO PROCURE ABRAMS AND BRADLEY ENGINES, TRANSMISSIONS AND OTHER COMPONENTS FOR OUR REGIONAL TRAINING SITE MAINTENANCE CENTERS. THESE CENTERS SUPPORT REGIONAL TRAINING FOR OUR RESERVE COMPONENTS. THE BUDGET REQUEST ALSO INCLUDES $324.9M IN FY90 FOR THE PROCUREMENT OF INITIAL AND REPLENISHMENT SPARES. THE INITIAL SPARES TOTAL OF $98.6M IN FY90 SUPPORTS THE FIELDING OF THE ABRAMS TANK, BRADLEY FIGHTING VEHICLE SYSTEM, RECOVERY VEHICLE AND M109 HOWITZER MODIFICATION PROGRAM. THE REPLENISHMENT SPARES REQUEST OF $226.3M IN FY90 SUPPORTS OUR PLANNED OPERATING TEMPO AND PROVIDES WAR RESERVES FOR IMPROVED READINESS.

ANOTHER ITEM TO BE ADDRESSED IS PRODUCTION BASE SUPPORT FOR TRACKED COMBAT VEHICLES. THE BUDGET REQUEST OF $66.5M IN FY90 REHABILITATES AND REPLACES INDUSTRIAL PLANT EQUIPMENT AT LIMA AND STRATFORD ARMY PLANTS; PROVIDES ANNUAL SUPPORT OF THE PRODUCTION TEST FACILITIES; LAYSAWAYS INDUSTRIAL EQUIPMENT EXCESS TO PRODUCTION REQUIREMENTS; AND PROVIDES INITIAL AND REPLACEMENT

DEPOT MAINTENANCE PLANT EQUIPMENT TO SUPPORT THE ABRAMS TANK AND BRADLEY FIGHTING VEHICLE SYSTEM.

MR. CHAIRMAN, THIS CONCLUDES MY PREPARED STATEMENT. WE APPRECIATE YOUR SUPPORT AND SOLICIT YOUR CONTINUED INTEREST IN THESE ARMY PROGRAMS.

M-1 TANK

Mr. MURTHA. You have 603 tanks in the budget. The budget proposes to keep the Lima production plant open and close Detroit. There will be some discussion about what the efficient rate of production is at these plants. The 603 figure includes the Marine Corps procurement. In talking to General Gray, and I may be misunderstanding him, but I have the impression he wasn't exactly sold on the M-1. He felt it was a little too heavy for the Marine Corps.

I don't know what the alternative is. I just wouldn't be surprised if the Marine tanks fell out. How many tanks would that be if they fell out of the buy?

General CHEN. In fiscal year 1990, the request is 155 tanks.

Mr. MURTHA. That is a big buy then.

There is no question that one of those plants would have to close down if the Marine Corps didn't buy them; is that right?

General CHEN. Yes, sir. In fact, even with their buy of 155 tanks, when added to our budget request of 448, that is effectively producing at a minimum sustaining rate for one plant; and as part of our budget request, for planning purposes, that does close one plant in September 1991.

Mr. MURTHA. What number do you get down to in order to close a plant?

General CHEN. Well, at our current budget request, it does close down one plant. So that total quantity of tanks for the Department of Defense is our budget request, Army, of 448 tanks and the Marine Corps quantity of 155. So, with that quantity, effectively we are planning to close down Detroit.

Mr. WILSON. Will you yield?

Mr. MURTHA. Sure.

Mr. WILSON. General, will there be an effect with the Egyptian buys?

General CHEN. The Egyptian buy is only 15 tanks initially. The rest of that is co-production.

So given that it is co-production in Egypt, then the effect of that on our two plants is very minimal.

Mr. WILSON. When I went to Lima, Ohio, they said the Egyptians would do the first part, which is put the tracks on and paint them.

General CHEN. Yes. That is true for the initial buy, for the initial 15 tanks.

Mr. WILSON. You know there is a proposed sale that we expect the Administration to send up for ———?

General CHEN. Yes.

Our estimate is ——— tanks, but that is in the fiscal year ——— period, which is later than our current budget request year of fiscal year 1990. So that effect would not be seen until we begin production in fiscal year 1992.

Mr. MURTHA. What is the minimum production at the plant you are going to keep open?

General CHEN. The minimum sustaining rate is 516.

Mr. MURTHA. What is the maximum?

General CHEN. The maximum can go up to 75 a month or 900 a year.

Mr. **Murtha**. So if you add that, the ——— buy in two years, can one plant produce the tanks that would be needed in 1992?

General **Chen**. In the 1992 time frame, the ——— would not be all in one year. So that is spread in the ——— time period.

Mr. **Wilson**. They could take them when you build them?

General **Chen**. That is probably not the terms under which they are buying, because as we know it, they specified 1992, 1993, 1994.

Mr. **Wilson**. I didn't realize the plant was on the verge of closing.

Mr. Chairman, I think General Chen should know, too, that ——— would like to have—I don't think Congress would approve a thousand at one time.

If it meant keeping a plant open in Detroit, the ——— will take them whenever we sell them to them.

We might want to put that in our equation. You might, too.

They would like to have a thousand tanks. They will take them in 1990.

General **Chen**. I doubt whatever the commitments they are prepared to make, that it would be in time to influence our 1990 budget.

TANK PLANT CLOSING

Mr. **Murtha**. We are not going to close this plant down if there is a chance we will need it down the road.

Go over the figures here again for us. How much would it cost to keep them both open and what would be the unit cost impact on the tanks?

General **Chen**. To produce with two plants at the minimum sustaining rate, we would need a buy of an additional 33 tanks, which would be an additional amount of about $94.4 million.

Mr. **Murtha**. How much more per tank is that costing us when you are producing at two plants like that?

General **Chen**. The cost for that would be a total of about $1.9 billion for 636 tanks. So the unit cost—I don't have a calculator with me, but it would be $1.9 billion divided by 636.

Mr. **Murtha**. So if you went with one plant——

General **Chen**. If we went to one plant at that minimum sustaining rate, it would be about $21 million less than that cost.

Mr. **Murtha**. You wouldn't go to a minimum sustaining rate if you go to one plant, would you?

You would go to a figure that is below two, but still would be a pretty high rate for one; isn't that correct?

General **Chen**. Well, we talk in terms of minimum sustaining rates and the minimum sustaining rate would be that rate where it is about the lowest level that we could sustain the plant at; and so when we have one plant, the minimum sustaining rate is 516 tanks.

Mr. **Murtha**. I understand that.

What I am trying to get at here is how much more are we paying per tank when we have two plants open?

General **Chen**. If we look at our current budget request to include the Marine Corps production of 155 tanks, the unit cost at the Lima plant would be $2.977 million per tank; and to keep both plants open for that same quantity, it would incur an additional cost of $300,000.

Mr. WILSON. Per tank?

General CHEN. Yes.

Mr. WILSON. That is $300,000.

General CHEN. That is at the current quantity level of the tanks that we have in the budget. Now, we could reduce those unit costs by increasing the tank buy to a minimum sustaining rate for both plants.

Let me just summarize, by way of example, the effects of going from a minimum sustaining rate of 516, which is the minimum sustaining rate for one plant.

Mr. MURTHA. That is the minimum sustaining rate for one plant?

General CHEN. Right; 516 tanks.

Mr. MURTHA. Is that an efficient rate?

General CHEN. It is not an efficient rate, because otherwise it would be an economic rate of production.

Mr. MURTHA. You would close a plant down if you had 516?

General CHEN. It would be uneconomical.

Mr. MURTHA. So you are saying 516 is the economic rate?

General CHEN. It is a minimum sustaining rate.

Now, certainly, if we wanted to incur——

Mr. MURTHA. When you say minimum sustaining rate, what does that mean?

General CHEN. That would be a rate, generally speaking, where it is perhaps 20 percent less than the economic rate.

You still incur a cost penalty compared——

Mr. MURTHA. The tanks would cost you a lot more?

General CHEN. Right.

Mr. MURTHA. Okay.

General CHEN. If we had a minimum sustaining rate of 576 tanks, that equates to an additional battalion of M1A1 tanks. In that case, we would have to incur additional operating and maintenance costs of about $960,000 per year and non-recurring support costs for additional support equipment of about $300,000.

TANK PROCUREMENT

Mr. WILSON. General, what is the buy for this year for the Army?

General CHEN. The buy is 448 tanks.

Mr. WILSON. Four hundred forty-eight, and the Marines are buying 150?

General CHEN. Right, but when you add those two, it is a total of 603, but what we have in fiscal year 1990 is a mix of economic production and minimum sustaining rate, because in fiscal year 1990, we are making use of the previous multiyear where we have a buy. We have an option of 299 tanks that we are to produce at 60 a month, which is the economic rate.

So we will produce those 299 over a five month period at an economic rate, and then we will have seven more months at a minimum sustaining rate.

Mr. **Wilson**. How many tanks total do we have to have for a minimum sustaining rate at both plants?

General **Chen**. Five hundred seventy-six.

Mr. **Wilson**. At each plant or total?

General **Chen**. Total.

Mr. **Wilson**. At 576 tanks, you can keep both plants operating?

General **Chen**. Yes.

Mr. **Wilson**. Mr. Chairman, we need to have the staff do some work on this.

If we can structure that ——— sale where they would take ——— next year, or whatever the Army wanted them to take, and they are going to buy a total of a thousand, it would seem to me we could use that to keep both plants operating for at least three years.

Mr. **Murtha**. What would be the economic buy?

If ——— were to buy the ——— tanks next year, what would that do for the price of the tanks?

Mr. **Wilson**. We can structure this any way we want to, to convenience the Army.

If the Army needed them to take them off the assembly line in 1990, they could take them in 1990.

General **Chen**. Let me summarize.

In fiscal year 1990, given what we currently have in the President's budget and the Marine Corps, to produce at a minimum sustaining rate with two plants, we would need an additional 33 tanks for $94.4 million. So any additional amount from other sources like ——— could help go from minimum sustaining rate toward an economic rate.

Mr. **Wilson**. This would be very important to a Senator from Michigan or to a Member of Congress from Detroit and to the people that live there.

So we need to do a little bit of work, but perhaps the staff needs to do a little bit of work with the ——— and the Army on this particular thing, because we know they want to buy ———.

It also would make a big difference to help the Administration get this sale approved, I would submit.

I think Congressman Dingell would take a significant interest in this.

MIA2 TANK

Mr. **Murtha**. How about the MIA2 tank? Where is that?

General **Chen**. That is currently in engineering development. We entered full-scale engineering development in December of 1988.

Mr. **Murtha**. What is the A2?

General **Chen**. It is an improvement over the M1A1 and has features that enhance operational effectiveness, survivability, and lethality. So it is an improvement.

Mr. **Murtha**. What specifically does that mean now?

General **Chen**. It has features that improve operational effectiveness. For example, we have a commander's independent thermal viewer that allows the commander to view the battlefield. That can enhance the capability of the tank.

It has improved survivability features that provide for more protection. It has a position-navigation system that helps locate where the tank is. It has improved night capability; and so the expected improvement in performance is about 50 percent for an increase in cost of about 20 percent.

Mr. **MURTHA**. Twenty percent increase in cost.

Mr. McDade?

Mr. **McDADE**. Thank you very much, Mr. Chairman.

General **CHEN**. May I say one more thing about the tank before we leave? That is, while the ——— is certainly a quantity that can help add to the overall production, as we look at a total period of, say ——— is really a small number.

Mr. **WILSON**. If they bought a thousand, it would be small?

General **CHEN**. If they did.

Mr. **MURTHA**. What do you mean ———? It is going to increase it by more than a third.

General **CHEN**. It would, but depending upon how that is structured, if it is ——— over a three-year period, then that is only 100 tanks more.

Mr. **WILSON**. I think the ——— would let you do it any way you want to.

If they got ——— for each year of two years; I think if we could get the sale approved, I think the Army will be able to adjust the sale to———

General **CHEN**. Except for planning purposes, at least based upon previous experience, foreign military sales cannot be totally relied upon as far as planning for the production base.

Mr. **MURTHA**. Mr. McDade.

VEHICULAR INTERCOM SYSTEM

Mr. **McDADE**. Thank you very much, Mr. Chairman.

General, while we are on the tank, I want to spend a little time discussing the vehicle intercom system.

I think you will recall last year when we learned that there were tremendous operational as well as maintenance problems with the current system, we added additional dollars.

We added $2.5 million for source selection costs and $10 million to start initial procurement of an NDI intercom called the vehicle intercom system.

You remember we did that last year?

General **CHEN**. Yes, sir.

Mr. **McDADE**. About a month ago, we had General Harris in here. He confirmed that there are significant operational as well as life-cycle maintenance cost advantages to procuring a new intercom system.

In answers for the record, he told us of the following severe operational problems associated with the old system. It is hard to imagine: 50 percent of all the message traffic is lost under the old system.

Are you familiar with that?

General **CHEN**. I understand that is what was said.

Mr. **McDADE**. Do you agree with that? Do you disagree with that?

General **Chen**. We understand that there is a problem. Whether or not it is that high, we can't ascertain.

Mr. **McDade**. General Harris is the man in charge, isn't he?

General **Chen**. For the Command, Control, and Communications.

Mr. **McDade**. It is his testimony.

Do you dispute that testimony?

General **Chen**. No, sir.

Mr. **McDade**. Why don't you just say 50 percent of the time the thing doesn't work? It doesn't carry traffic. That is what his testimony to this committee is. That is what he told us, General.

General **Chen**. Yes, sir.

Mr. **McDade**. You don't dispute it? You agree with it?

General **Chen**. I acknowledge that he made that statement.

Mr. **McDade**. Do you have information to the contrary?

General **Chen**. No, sir.

Mr. **McDade**. Are you aware he also told us that if it had taken—this is his testimony and I am quoting him ———. Are you aware of that?

General **Chen**. ———.

Mr. **McDade**. ———. That is what General Harris, who was the man in charge of communications for us, told us.

Logistics, his testimony again, the man you have in charge of this, this 30 year old system costs 10 to 1 for maintenance against current off-the-shelf technology.

You want to spend—I think there are 84 separate upgrades that you are talking about on the new tank. I believe there is $84 million for upgrades on the Bradley; right? In this year; right?

General **Chen**. Right.

Mr. **McDade**. You are asking for over $2 million apiece for the M1, with the black upgrade costing between $300,000 to $500,000 a tank. Yet, you don't want to fund an NDI item that will reduce your maintenance costs by a factor of 10 to 1, that will stop you from losing 50 percent of the message traffic ———.

You people don't seem to want to do that. That is a mystery up here.

Why don't you want to do that?

General **Chen**. Well, we are planning to do that. We———

Mr. **McDade**. When?

General **Chen**. The $2.5 million research and development effort you referred to was directed by law, but the funds were not authorized. No separate authorization was provided.

Mr. **McDade**. It was in the bill language, General. The money was in bill language.

There is a difference. You understand the difference.

General **Chen**. Yes, sir.

Mr. **McDade**. You know how you fund the intercom currently, don't you?

Under the current system, you fund it out of the line for the M1. You don't require a separate authorization. You fund it out of the cost of the tank just as you do most of the things that are inherent in components of the tank; right?

General **Chen**. Right, we normally fund it using RDT&E funds.

Mr. **McDade**. This is NDI, non-development item; you don't have to reinvent it. It is technology that is sitting there.

You are talking somewhere between $3,000 in extra cost per unit to put a new modern intercom in the M1 tank and the Bradley.

We can't understand why you are not doing it.

General **Chen**. We are currently looking for the $2.5 million after which we will conduct a solicitation to ask for proposals to come in so they can deliver samples that we can evaluate.

Mr. **McDade**. You are going to do it? When are you going to do it?

General **Chen**. As soon as we find the $2.5 million which we expect within a month, we will be able to start the solicitation process.

Mr. **McDade**. Well, it is in last year's bill. I don't know why you have to fiddle around. I don't know what has been going on when you have a system that is not workable.

Everybody agrees it doesn't work. Now we are sitting here trying to help you get the job done.

We seem to be meeting resistance at every turn.

Mr. **Murtha**. Will the gentleman yield?

General Chen is there any question about the testimony? Do you agree with the testimony of General Harris?

General **Chen**. Yes, sir.

Mr. **Murtha**. Okay. You agree with the testimony. Is there any question we earmarked money last year to try to rectify this problem?

General **Chen**. There is no question.

Mr. **Murtha**. Then what is your problem?

General **Chen**. What we are looking for is RDT&E funding to do this. In fact, we have some execution reviews ongoing internally within the Army that are taking place this week for which we will earmark the funds and with those funds, we will be able to start this RFP solicitation process.

Mr. **McDade**. You know the funds are earmarked in the bill, $2.5 million, in RDT&E? They are already in the bill? There is $10 million in the bill for procurement that requires, as you indicated, an authorization if you want to do it separately. You have $2.5 million in the bill earmarked for R&D to try to help you go out and fix the problem. You have $10 million in additional dollars added. But you have been funding the current intercom out of the cost of the tank. It is not a separately authorized item.

General **Chen**. We have been buying it out of the Weapons and Tracked Combat Vehicle appropriation.

Mr. **McDade**. There is $2.5 million, we are advised, to fix this problem. We are told there is an NDI improvement. Why can't you just buy the new system and include it in the cost of the tank?

You can do that, can't you.

General **Chen**. What we plan to do, as I said, is that we will start the solicitation process. We will receive the proposals, evaluate them, conduct the source selection, and then look for the contract award.

Mr. **McDade**. We will see two or three years going by with 30 year old technology. We don't want to see that, do we?

General **Chen**. No, sir.

Mr. **McDade**. It seems to us on this side of the table that this is an item that is crying out for some help. We put money in, and language into the bill to try to help you get to it. We are waiting for it to happen. It can't—you can't dilly-dally.

There is no reason to produce another 100 tanks with 30 year old technology if NDI alternatives are sitting there ready to go.

It needs your prompt attention.

General CHEN. Yes, sir.

Mr. McDADE. Thank you, General. I appreciate it.

Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Dicks?

IMPROVED TANK RECOVERY VEHICLE

Mr. DICKS. After stating strong support for the need for a new tank recovery vehicle, the Army is now undecided as to whether to procure the M88A1E1, its chosen candidate. Has the requirement for an improved tank recovery vehicle gone away?

General CHEN. No, sir. The requirement is still there.

Mr. DICKS. Where does the M88A1E1 program stand at this point?

General CHEN. It is currently undergoing technical testing after which operational testing will begin.

However, testing on the winch has now stopped because there has been problems in the winch.

Mr. DICKS. Even with the fix that they had? That isn't working?

General CHEN. The fix was evaluated in February, around the end of February. It was found to be okay to continue with the test and the demonstration, but just last week, there were additional problems. It has been erratic and right now the testing on the winch operations has been halted until the contractor can provide another fix.

Mr. DICKS. Would it be included in the revised budget plan?

General CHEN. I can't answer that at this point. The revised budget is under review within the Office of the Secretary of Defense and I am not aware of a decision at this time.

M88 DEFICIENCIES

Mr. DICKS. That is the answer I expected.

What were the deficiencies of the M88A1E1 vehicles that were tested last year, besides the winch?

General CHEN. Besides the winch, the other deficiency had to do with the spool where it wasn't going on the spool straight.

Mr. DICKS. Do they have a fix for that?

General CHEN. We expect they will. Of course, that was one of the reasons why we did not go into production immediately after the evaluation. So the decision was to continue with the testing, to go through the technical tests and the operational tests before a production decision.

Mr. DICKS. When will the Army release the $24.1 million appropriated in fiscal year 1988 for advance procurement for the M88A1E1?

General CHEN. It will be released upon satisfactory testing to include operational testing and a production decision.

Mr. DICKS. When do you expect that to happen?

General CHEN. On the current test schedule, it will probably be in the first quarter of fiscal year 1990.

Mr. DICKS. What alternative is the Army considering to satisfy the continuing requirement for a vehicle to recover the M1A1 tank?

General CHEN. We have one method. That is to use the M88 towing the vehicle with another vehicle in back, two of them, or one M88 in front and then another tank in the back.

The other alternative is strengthening the tow bars.

Mr. DICKS. Explain that one. We never heard about that one.

General CHEN. That is basically just to provide a lighter and stronger tow bar.

Mr. DICKS. Does that take care of all the deficiencies? Are you saying that one M88 can then handle a tank under all circumstances if you just strengthen the tow bars?

General CHEN. No, sir. It will not. As I stated, the requirement for an improved recovery vehicle still exists.

Mr. DICKS. It has been put on hold.

Mr. MILLER. Will the gentleman yield?

Mr. DICKS. I will be glad to yield.

Mr. MILLER. General, we had an answer from Under Secretary Michael Stone, at least he has been quoted as saying that one solution on this problem of retrieving M1 tanks is to keep doing things the way we have for the past five years; meaning the Army would have to use two recovery vehicles in order to retrieve one M1 tank.

Would you care to comment on that remark as to whether this is so and we may go out in the outyears and find that we are still needing two recovery vehicles for each M1 tank?

General CHEN. That is a current practice with our current M88 and if there is no new improved recovery vehicle, then that practice would need to continue.

Mr. MILLER. In the funding, your statement is you intend to use the fiscal year 1988 and fiscal year 1989 appropriation for the fiscal year 1990 procurement of what, 61 tanks?

General CHEN. Sixty-one recovery vehicles.

Mr. MILLER. Does that money come from the same line item or are we getting into different sources for that money?

General CHEN. It is the same moneys that were previously appropriated for the recovery vehicle; but because the current status of testing is such that insufficient testing has been completed, that money cannot be obligated; and so our plan, since those prior-year funds are still good, that instead of needing a fiscal year 1990 budget request, we can use those prior-year funds toward the buy of 61 vehicles.

Mr. MILLER. Understandable.

Thank you.

Thank you, Mr. Dicks.

BRADLEY FIGHTING VEHICLE (BFV)

Mr. DICKS. The budget includes $576.4 million for procurement of 600 Bradley fighting vehicles. The budget proposes a five-year multi-year contract of 600 vehicles per year. Last year, Army witnesses told us that out-year procurement of the Bradley would be at the minimum sustaining rate of 336 per year. In a year when most programs are being cut back, why did the Bradley program increase?

General CHEN. The Bradley program increased based upon a review conducted by the Office of the Secretary of Defense in looking at economic production rates. The Army had submitted a budget where it was at a minimum sustaining rate of 336 vehicles per year. Based upon the review, the Office of the Secretary of Defense then, as an initiative under economic production rates, incorporated the multiyear aspect, as well as the additional production to 600 vehicles.

Mr. DICKS. Do we have the fixes on the Bradley now? Where are we in that program?

General CHEN. We have those fixes. The high survivability modifications are incorporated as part of the basic production. We are now producing the M2A2/M3A2 configuration as a result of previous survivability testing.

Mr. DICKS. How many have been procured prior to that point? You can correct it for the record.

[The information follows:]

As of 31 March 1989, the Army has accepted delivery of 4,267 Bradley Fighting Vehicles. This figure includes 2,300 Basic Bradleys; 1,371 M2A1/M3A1 configured Bradleys; and 596 M2A2/M3A3 survivability improved Bradleys.

MR. DICKS. Generally, how many do we have? Two thousand? Four thousand?

General CHEN. Roughly 4,000 Bradleys. Of the 4,000, there are 2,300 Basic Bradleys and 1,371 A-1 configured Bradleys. These Bradleys do not have the survivability improvements. So far, we produced 411 with that modification. Let me make a correction there.

What we produce so far are 2,300 basic Bradleys; 1,371 what we call A-1 Bradleys, and then 596 A-2s that have those survivability buys.

Mr. DICKS. Twenty-three hundred basics, 1,371 A-1s, and 596 A-2s.

That adds up to about 4,000-plus Bradleys already. A little more than ten percent of them have the updated survivability. What are we going to do with the 2,300 that don't have it?

Are we going to go back and try to retrofit? Is there a program for them? Will we leave them as they are?

General CHEN. Right now we don't have a program for retrofit. As we looked at the overall costs over the five-year period, we found that we could not afford to modify those basic Bradleys.

Mr. DICKS. You are going to modify some of them, aren't you?

General CHEN. We are going to modify those 1,371 A-1s.

Mr. DICKS. The A-1s will get the A-2 fixes?

General CHEN. Yes, sir.

BFV MULTIYEAR CONTRACT

Mr. DICKS. Okay. The budget proposes a multiyear contract for the Bradley chassis. What Bradley components are currently broken out as government-furnished equipment and what is the procurement strategy for each?

Provide contract milestones. Do that for the record.

[The information follows:]

The following Bradley major components are broken out as government furnished equipment to the Bradley prime contractor, FMC Corporation: Fire control components, transmission, turret drive system, engine, track, and Bushmaster 25mm cannon. The procurement strategies for each is as follow: (1) Fire Control, limited competitive five year (FY90–94) multiyear contract, contract award of June 1990; (2) Transmission, sole source multiyear contract (FY89–91), contract award June 1989, follow-on multiyear contract (FY92–94) is anticipated; (3) Turrett Drive System, sole source multiyear contract (FY88–91), contract award March 1988, follow-on multiyear contract (FY92–94) is anticipated; (4) Engine, sole source annual procurements, contract award is August 1989/1990/1991; (5) Track, competitive annual contracts, contract award June 1990/1991; and Bushmaster 25mm Cannon, sole source multiyear contract (FY86–90), contract award October 1986, follow-on multiyear contract (FY91–94) projected award for October 1990.

Mr. DICKS. Since the MLRS uses the Bradley chassis, will the MLRS requirements be included in the multiyear contract?

General CHEN. Yes, sir; they will.

Mr. DICKS. What provision will be included in the contract to vary the quantity to be procured each year?

General CHEN. In the multiyear, there will be an upward quantity option clause for the Bradley.

Mr. DICKS. Is there a downward clause?

General CHEN. No, there isn't.

Mr. DICKS. We understand this is one of the items that may be reviewed and changed in the Bush budget revisions.

General CHEN. Yes; right.

Mr. DICKS. Earlier this year, Saudi Arabia signed a letter of agreement to buy 200 Bradley vehicles.

How will the unit cost savings from this and other potential foreign sales be reflected in the proposed multi-year contract?

General CHEN. The Saudi Arabian buys would be part of an option to the multiyear. Right now, our information is that there will be two delivered in fiscal year 1989, 98 in fiscal year 1990 and 100 in fiscal year 1991.

So the—there would be some adjustment to the unit costs and I will provide that for the record.

[The information follows:]

The Saudi Arabian agreement to buy 200 Bradleys is reflected over the total multiyear procurement quantity of 3000 vehicles and results in $9.6 million and $11.4 million savings in FY 1990 and FY 1991. Currently, there are no other foreign sales inquiries being evaluated. Once the multiyear procurement contract has been negotiated any future foreign military sales will not change the unit cost since the multiyear procurement is being negotiated as a firm fixed price contract.

Mr. DICKS. In last year's appropriation, Congress transferred $59.4 in excess prior-year Bradley procurement funding and reduced the budget request for 581 vehicles in fiscal year 1989 by $38.150 million.

It now appears that even the reduced 1989 appropriation was at least $7 million too much since that amount is proposed to offset 1990 requirements. The Bradley is now in the tenth year of production, a mature system. Why are your budget estimates so consistently overstated?

General CHEN. There have been changes to the Bradley program in terms of the overall content.

We go through a budget scrub ourselves within the Army and then when we present the budget to the Office of the Secretary of Defense, and so I could tell you that within the Army, we have gone through and made changes to the initial budget submissions, so while there has been some overstatement in the past, we are conscious of that and that is a part of our continuing review.

BFV TOW II SUBSYSTEM

Mr. DICKS. In August 1989, the Army awarded a second source contract to Texas Instruments for the TOW 2 subsystem for the Bradley. Last year, we were told that the first five systems would be delivered last December and that Texas Instruments would be producing 20 per month by June, 35 per month by November, and 40 per month by January.

What is the status of the Texas Instruments contract?

General CHEN. That is an ongoing contract. They delivered five initial production test units and they are currently going through the initial production test.

That test is scheduled to be completed during July 1989.

Mr. DICKS. So we are a little behind there?

General CHEN. We are undergoing the test. They will be producing 20 a month by June and 35 a month by November of 1989; 40 by January of 1990.

Mr. DICKS. You don't see any slip in this?

General CHEN. No, sir.

Mr. DICKS. What is the overall procurement strategy for the TOW 2 subsystem?

General CHEN. That is competitive. It will be a competitive winner take all procurement as part of the fiscal year 1990 to 1994 multiyear.

Mr. DICKS. There were a few other questions here that we will ask for the record.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

Question. What is the overall procurement strategy for the TOW 2 subsystem?

Answer. The planned FY 1990–94 acquisition strategy is a limited competitive five year multiyear contract. The competition is to be between Hughes Aircraft Corporation (HAC) and Texas Instruments (TI). The Army will award a limited competitive split award for the FY 1989 production and FY 1988/89 mod line funded requirements on 28 April 1989. The split award could be as high as 70/30 percent between HAC and TI.

Question. The budget projects a decrease in the unit cost of the TOW 2 subsystem from $252,215 in 1988 to $169,122 in 1990. To what do you attribute this dramatic decrease?

Answer. The reduction in unit cost from $252,215 in FY 1988 to $226,530 in FY 1989 is the Army's projection of the FY 1989 competitive split procurement between Hughes Aircraft Corporation (HAC) and Texas Instruments (TI) for the TOW 2 subsystem. The further reduction to $169,122 in FY 1990 is again the Army's projection of the unit cost resulting from a limited competitive five year multiyear contract award between HAC and TI.

MULTIYEAR CONTRACT SAVINGS

Question. On the other hand, the unit cost of the vehicle decreases by only 3.6 percent from 1989 to 1990. These savings would not appear to justify a multiyear contract. Please comment.

Answer. The total five year (FY 1990–94) multiyear procurement savings on the Bradley chassis are projected at approximately 12 percent over a single year procurement. Contract savings in the first year (FY 1990) of the multiyear contract are not as great because of prime contractor and vendor planning, contracting, purchasing and work loading requirements. Total multiyear dollar savings are projected at approximately $193.6 million, which is split between inflation ($20.3 million), prime contractor ($76.1 million), and vendors ($97.2 million).

Question. Contractor engineering costs for the Bradley have been running at about $50 million per year. Why are no such costs budgeted in fiscal year 1990?

Answer. The Army was directed to budget for these costs on an annualized basis. As a result, the DOD Comptroller's office decremented this line for FY 1990.

[CLERK'S NOTE.—End of questions submitted for the record.]

Mr. MURTHA. Mr. Wilson?

STINGER MISSILE

Mr. WILSON. Thank you.

I know the Stinger is not next in line. I may not be here when it is talked about.

Is the story I read in the newspaper true that the Army has suspended delivery of the RMP because there is a problem with ———?

General CHEN. Let me expand on that.

It is true the Army has not accepted any deliveries of the Stinger reprogrammable microprocessor missile.

Mr. WILSON. None at all?

General CHEN. None at all, except for about 100 we have accepted for test purposes. The reason we have not accepted these is because the contractor has not met the specifications and the specific aspect where they have not met the requirements is ———. It is that particular scenario where the contractor has not met its requirements, but the Stinger RMP missile, has met its requirements against a fixed wing in an infrared countermeasures environment.

Mr. WILSON. You still have not accepted them because of that?

General CHEN. Yes, sir; that is correct.

Mr. WILSON. The contractor now—I am close to the Stinger for other reasons; but the contractor is not piling up the Stinger rockets in a warehouse out there?

General CHEN. He is.

Mr. WILSON. How long do you think he will continue to do that?

General CHEN. He will continue to do that until he delivers an acceptable product or unless he runs out of storage space.

Mr. WILSON. Or until it gets to be too expensive for them.

General CHEN. Yes, but we do have a contract, a production contract; and until he meets the requirements, the government doesn't intend to accept them.

Mr. WILSON. Who is dealing with the contractor on this?

General CHEN. We have a program manager. We also have a program executive officer.

Mr. WILSON. Is there any controversy about this in the Army?

General CHEN. There is total agreement within the Army that we should not accept those missiles until they have gone through satisfactory testing.

Mr. Wilson. Do you know how many he has in the warehouse?

General Chen. He probably has close to 6,000.

Mr. Wilson. There is nothing wrong with the missile?

General Chen. The missile from a hardware standpoint is supposed to be good. The feature that is yet to be fully tested is the module, the software module that goes into the gripstock. That is the portion that the contractor needs to fix and he needs to rework the modules that were previously produced in order for the government to accept those.

Mr. Wilson. He needs to rework some that were previously produced?

General Chen. The modules he previously produced.

Pedestal Mounted Stinger

Mr. Wilson. How is the Pedestal Mounted Stinger program doing?

General Chen. It is doing good. It is about ready to enter the operational tests.

Mr. Wilson. Boeing is the contractor on that?

General Chen. Yes, sir.

Mr. Wilson. The Navy has Stingers, too; don't they?

General Chen. Yes, sir.

Mr. Wilson. On pedestal mounts on ships?

General Chen. No, sir. That is not part of any Navy program.

Mr. Wilson. So the Navy just uses them by hand-held, by sailors on the deck of the ship?

General Chen. Yes, sir.

Mr. Wilson. Okay.

General Chen. The particular scenario with regard to those ———.

Mr. Wilson. The Soviets, as far as we know, don't have an operational battlefield helicopter that hovers, do they? The Hind doesn't hover?

General Chen. That is correct. The Hind does not hover.

Mr. Wilson. Do they have anything that hovers? I know we need the capability, but they don't have anything that hovers?

General Chen. The Havoc and Hokum will hover.

Mr. Wilson. We should know that, shouldn't we?

General Chen. Yes, sir.

Mr. Wilson. Do you think we know that?

General Chen. Oh, we know that.

Mr. Wilson. I guess the problem would be—and I am sure you all have thought this all through—the problem would be that where our own soldiers have 6,000 good weapons, they might need against fixed-wing aircraft and all the other helicopters, because of that one thing, but I am sure that has been in your computers and thought out.

General Chen. Yes, sir.

In fact, we have a test program that will take place here in April and May where we plan to test the contractor fixes and if all goes well with that, then there will be a criteria met where we can accept those missiles.

Mr. Wilson. You might set new criteria, but it is my understanding the scientific problem isn't solved yet?

General Chen. It is a difficult problem. That is all part of the program where once they fix it, we will test it and then based upon those test results, if they are satisfactory, we will accept the missiles.

Mr. **Wilson**. Okay.

What are we working on, a M1A3?

General **Chen**. Right now, we are in development on the M1A2, which is the next version to the current M1A1.

Mr. **Wilson**. Would you review quickly for me what the capabilities are going to be that the A-1 doesn't have?

General **Chen**. The capabilities include a commander's independent thermal viewer. It includes a CO-2 laser range finder that has better visibility through obscurants. It has survivability enhancements. It has a position navigation unit. It has a data bus, a—what we call a 1553 data bus that allows for the passing of digital data; and it has the capability for the improved armament enhancement munitions. So these are improvements that involve operational effectiveness, fightability, and survivability.

IMPROVED RECOVERY VEHICLE

Mr. **Wilson**. That recovery vehicle Mr. Dicks was talking about, the Improved Recovery Vehicle. Is that something that budgetary constraints have caused us to put on hold; is that what you said?

General **Chen**. That is. Based upon the Army's standpoint, we look to affordability and we also looked at the current performance of the system. Based upon the evaluation that was held last year, we decided that the program should continue with testing before the production decision.

Mr. **Dicks**. But they held up on the testing for a period of months and they did not push aggressively to try to get fixes.

It has been delay, delay, delay. It basically has been mishandled by the Army as far as I am concerned.

Mr. **Wilson**. Do you intend to attempt to use any sort of a remedy for that?

Mr. **Dicks**. We tried to talk to them, but they don't listen to General Thurman and the other CINCs who say we have an absolute requirement for this, get busy, do it.

General Thurman sent back as strong a message as I have ever seen regarding this particular item, but the under secretary sits over there and has this crazy notion that somehow using these two M88s, that that is a feasible way to deal with this problem into the future. With a heavier tank, you need this. The requirement is there. SACEUR has spoken strongly that he wishes they would get over these budgetary wrangles within the Department and get serious about this.

It is needed, but—and there are some legitimate problems that have to be straightened out. No one doubts that, but they delayed the testing program for several months while they contemplated about this matter.

Had they been more aggressive about that. We could have had fixes for this earlier.

What they have done now is drag it out so long the contractor is on the verge of throwing in the towel and going home because they are supposed to obligate the advanced procurement money that this committee provided in fiscal year 1988 and they still haven't done it.

Now they are going to use the budgetary situation to go back and say, "We can't afford to do this even though the requirement is still there. We wasted all this money in R&D and we are not going to have anything for it."

That is what it is all about. That is the bottom line.

Mr. WILSON. I don't have anything else, Mr. Chairman.

Mr. MURTHA. Mr. Hefner?

Mr. HEFNER. No questions.

Mr. MURTHA. Mr. McDade?

120 MILLIMETER MORTAR

Mr. McDADE. Let me talk to you a little bit about the 120 mm mortar.

We got a document today from the Department where the Administration proposes funding sources for the contra aid package, the humanitarian aid package. As we understand, there are $12.7 million included in it appropriated in fiscal year 1987 appropriations for the 120mm mortar. Did the Army offer this up or was this directed through OSD?

General CHEN. The Army offered that up. It was not because we don't support the 120 millimeter mortar program. It is because the current test program, and the milestones relative to completion of the testing, will not allow us to go into production before the fiscal year 1987 production funds lapse in September of this year.

Mr. McDADE. $12.7 million?

General CHEN. Right, so that amount would expire; and since those would be expired funds, we would be unable to use those in support of the 120mm mortar program.

They were offered up for that reprogramming action, and our plan with regard to the 120 millimeter mortar is to use the fiscal year 1989 and 1990 funds to proceed with the initial production contract.

UNOBLIGATED BALANCES

Mr. McDADE. Let me ask you, is this $12.7 million the only amount of unobligated balances for 1987 that is expiring?

General CHEN. Yes.

Mr. McDADE. In the whole Army budget, this is the only——

General CHEN. No, but for that line it is.

Mr. McDADE. I am talking about all lines, all your lines in 1987.

General CHEN. Right now offhand, I can't speak for all the lines that the Army has in fiscal year 1987.

Mr. McDADE. Send us as quick as you can a list that would list by line all of the unobligated balances for 1987.

As you know, this has been a committee interest for a long time, and we want to make sure that we are doing it right, because you are taking this money. You are liable to get into a crunch period as you get down to fiscal year 1989–1990, and if you are giving up this $12 million when there are other dollars available——

General CHEN. I think we need to provide to you how we are going to go into production on the 120mm mortar. We will be using fiscal year 1989, funds as well as fiscal year 1990 funds when they are appropriated, because by the time we finish testing and are ready for production, it will be fiscal year 1990.

Mr. McDADE. Submit the list of the unobligated balances for 1987 and we will look at them.

[The information follows:]

A copy of the Army's Appropriation Status By fiscal year Program and subaccounts report was forwarded to the committee under separate cover.

M-119 105MM LIGHT HOWITZER

Mr. MURTHA. Let me ask about the 105mm light howitzer. Has that program been delayed?

General CHEN. Yes, sir, because the contractor, Royal Ordnance, has been late in delivery.

Mr. MURTHA. I read here in the small print of the procurement justifications that, "U.S. production shall be delayed due to inability of the producer to find a suitable substitute of steel in the United States."

General CHEN. Yes, sir. That is an U.K. special steel where currently there is no qualified U.S. steel that matches that.

Mr. MURTHA. Get me those specifications. I want to see if we can't get that steel for you. I know this is not a big order, but we will take anything we can get.

Get me the specifications for that steel and we will see if we can't find that steel for you in the United States.

General CHEN. We will provide that for the record. It is a combination of small quantity as well as qualification.

[The information follows:]

The British-produced steel is being used by Rock Island Arsenal to preclude extensive engineering/development tests on U.S. specification steel at a time when delivery of howitzers is critical. A value engineering proposal is being prepared by Rock Island Arsenal to substitute a U.S. specification steel for the British specification steel. The value engineering proposal will include engineering prototype manufacturing and engineering tests costs with the end result being a switch to U.S. specification steel. The manufacturing and test program will not be completed until 1991 and, assuming success, howitzers manufactured to U.S. specification steel should commence with orders placed in October 1991 for the fiscal year 1992 buy.

M16A2 RIFLE MULTIYEAR CONTRACT

Mr. McDADE. Mr. Chairman, I have one more question. You got a letter, and the Committee did, from the former program manager for the Army for the M16A2 rifle. The letter reads, "Very serious concerns about the award of the multi-year contract for Fabric Nationale," and I believe that you are familiar with the contents of the letter.

For the record, I would like to ask your comments on the letter, particularly on the criticisms that are leveled in the letter, which seem pretty cogent. It is a fellow who used to run the program for you.

General CHEN. I believe we satisfactorily addressed the criticism in our responses made. As far as government procurement of the M16A2 we did select FN Manufacturing, Inc. not be confused with Fabrique Nationale in Herstel, Belgium, because this plant is in

South Carolina. They did submit their bid for the M16A2. There was a preaward survey. That preaward survey affirmed that they were eligible to win that contract, and they did.

In the case of FNMI, they previously produced M16 components. The contract was awarded to them, and it was at a lower cost than a competitor. While there is some production gap with the Colt deliveries, that production gap won't affect fielding. And so from an overall standpoint, there was a competition, there was a source selection, and FN was selected as the winning contractor.

Mr. McDade. General, in the letter that has been sent to the committee as well as to the Army, there are some 12 specific criticisms that the former program manager has brought to our attention.

I want you to respond to each of them for the record.

Thank you.

[The information follows:]

In response to the first criticism that FN Manufacturing, Inc. is a foreign owned company, the September 28, 1989 five year multiyear contract for the M16A2 rifle, awarded to FNMI of Columia, South Carolina, was the result of a competitive solicitation restricted to specific, experienced United States military small arms manufacturers. Although FNMI is a subsidiary of the Belgium firm Fabrique Nationale, Herstal, they are an experienced domestic source and fully qualified member of the United States' military small arms industrial mobilization base.

In response to the second criticism that FNMI lacks the capability to deliver quality M16A2 rifles, FNMI has been the sole producer of the M240 family of machine guns for over five years. User satisfaction with the M240, a fairly complex automatic weapon, has been high and the quality of the gun is very good. FNMI is producing M16 barrels under four contracts. They also manufacture parts for other military small arms.

In response to the third criticism that FNMI is in financial trouble, a preaward survey performed in September 1988 by the Atlanta Defense Contract Administration Services Region's repesentatives and a team from the Army's Armament, Munitions, and Chemical Command, recommended complete award of the M16A2 contract to FNMI, with no reservations about the company's ability to produce the rifle and comply with contract delivery requirements or any other aspects relating to contractor responsibility. This included a determination that FNMI is in a sound financial position.

In response to the fourth criticism that the current producer's pricing reflects the true cost of manufacture, despite the DoD "should cost" of $455 per weapon, Colt bid $477. FNMI's lower bid of $420 per weapon saved the Government over $15 million over the life of the contract and was found to be a responsible bid by the preaward survey team.

In response to the fifth criticism concerning the disqualification of FNMI's low bid for the M203 Grenade Launcher, FNMI did in fact receive a negative preaward on the M203 Grenade Launcher contract for financial capability. This was due to FNMI nearing completion of their M240 contract and to their very limited working capital with no immediate prospects for significant additional Government business at that time. Subsequent additional requirements for the M240 were received during the summer of 1988 and FNMI received an award. Along with other Government and commercial business and a fianancial guarantee provided by FNMI's parent company to the United States Government, the M240 contract award placed FNMI in a position to receive a recommendation for complete award of the M16A2 contract.

In response to the sixth, eighth, tenth, eleventh, and twelfth criticisms concerning the industrial base and the retention of a skilled national work force, the domestic industrial manufacturing base involved with the M16 should remain robust. The government buys all components of the rifle as spare parts, utilizing the mature technical data package. These procurements are very competitive. There are normally 15–30 offerors on most components. It is hoped that Colt will participate in these procurements. Additionally, EMCO of Gadsden, Alabama was awarded the M16A1 modification kit contract in July 1988 to produce those components necessary to convert designated M16A1s to M16A2s. With regard to the concern about potential production of the M16 by Canadian firms, it is emphasized that all parts and components of the rifle are required to be manufactured in the United States. In addition to fielded M16A1 and M16A2 rifles, there are over 223,000 serviceable M14 rifles, the designated alternate to the M16, in stock that could be applied against requirements in time of crisis.

In response to the seventh criticism that FNMI has produced defective M16 parts and assemblies, it is true that FNMI experienced a quality problem on one of its four contracts for M16 barrels. The problem was discovered at Anniston Army Depot during test firings and prior to fielding. It involved the chrome plating of the barrel and was not dissimilar to the problems experienced by Colt during the Vietnam War era and by other M16 producers during early rifle production. In fact, all previous producers of this barrel, including Colt, have experienced problems and delays in achieving an adequate production process. A total of 13,151 barrels was returned to FNMI for rework or replacement at no cost to the Government. This quantity represented only six percent of the total M16 barrel contract quantities awarded to FNMI and applied to only one contract. Process changes were implemented which corrected the problem and FNMI is currently producing barrels which fully meet Government specifications.

Mr. McDADE. Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Dicks.

9MM HANDGUNS

Mr. DICKS. The 9mm guns being delivered under the current contract with Beretta have experienced slide failure and other problems. How are these problems being addressed?

General CHEN. We have had those slide failures. We have developed a slide capture device. We are producing a modified slide that incorporates that slide-capturing device. We plan to have 8,000 of those modifications delivered in April of 1989. We will modify all the M9s in our inventory by the end of 1990.

Mr. DICKS. Who is paying for the correction and what is the cost?

General CHEN. That cost will be at no cost to the government, and so that is part of the contractor's cost.

Mr. DICKS. What other technical problems have you encountered with the guns?

General CHEN. We previously had a problem associated with frame cracks, and that was found during production acceptance testing.

Based upon review of those test results, an engineering change was developed and implemented to correct the problem. The lots of the weapons that were affected have since been reworked, tested and accepted, and we have experienced no other frame cracks.

Mr. DICKS. The fiscal year 1987 appropriations act required the Army to conduct another competition for the 9mm handguns. What is the status of this and the current milestones?

General CHEN. That testing began in August of 1988. The testing was completed in February. The test data is currently being evaluated, as are the cost proposals, and the announcement of the winner is expected in May of 1989.

Mr. DICKS. The Department was requested to submit a report on the results of the competition which includes a list of alternatives for smoothly incorporating the winner into the 9mm acquisition plan.

When will this report be submitted and what alternatives are being considered?

General CHEN. That report will be submitted after the announcement is made in May and since we don't have the results yet, we don't know what the specifics are for that, but once the announcement is made, we will be glad to furnish that report.

[The information follows:]

A report on the results of the 9mm competition will be sent to the Committee under separate cover after the winner is announced in mid May 1989. If the M9 (Beretta) wins, no plan for incorporating a new configuration 9mm will be prepared. If, however, another competitor wins, the report will contain a plan for smoothly incorporating the winner into the 9mm acquisition.

Mr. DICKS. Fiscal year 1989 is the last year of the five year multiyear contract with Beretta. What is the acquisition strategy for fiscal year 1990 and beyond?

General CHEN. Fiscal year 1990 and beyond would be a multiyear contract. So that would be included in the source selection decision with the source that is selected. And so if the source is other than Beretta, it will be a multiyear. If Beretta is selected, then we will exercise the option to the contract.

Mr. DICKS. What is the total quantity of 9mm handguns that the Army intends to buy and how many have been funded to date?

Put that in the record.

[The information follows:]

The Army's Authorized Acquisition Objective of 9mm handguns is 269,316, of which 242,972 are funded through fiscal year 1991.

Mr. DICKS. What is the Army's plan for phasing out the current inventory of handguns which the 9mm was to replace?

General CHEN. Let me provide that for the record.

[The information follows:]

As the 9mm handguns are fielded, they will displace the .38 and .45 caliber pistols currently in the inventory. Those weapons will then be forwarded to depot stocks. Currently, there is no disposal plan. Some options available are FMS, maintenance as war reserve, and destruction.

Mr. DICKS. Mr. Miller, did you have something you wanted to add? I would be glad to yield.

Mr. MILLER. General, what was it two or three years ago I guess we had the big shoot-out in our full committee concerning the Beretta and the Smith and Wesson with Congressman Steny Hoyer supporting the Beretta and Congressman Boland supporting the Smith and Wesson, and it was a mighty good debate that we held.

I wonder what really came from it. Now I understand that there is a third competitor. Is this true, and if so, with the instructions that we had for the competition, as I recall, it listed two but now apparently there is a third, is that true?

General CHEN. Since the process involved a source selection that I am not privy to, I don't know the specifics in terms of the number of competitors, but we did conduct the competition. The competition had its solicitation. Those that responded then were evaluated. And the results will be made known with the announcement of the source selection in May.

Mr. MILLER. But there is a third competitor beyond the two, Beretta and the Smith and Wesson?

GENERAL CHEN. There may be.

Mr. MILLER. Perhaps it would be good if you could furnish that for the record as to what is being planned, and if there is a third party involved in the competition.

[The information follows:]

The current 9mm competition involves 3 competitors. One of those is the M9 which was entered into competition by the Government. The identity of the other competitors is competition sensitive and cannot be released. All competitors were evaluated using the same criteria. Test data and cost proposals are currently under evaluation and a winner is expected to be announced in mid-May 1989.

General CHEN. That, as I mentioned before, is source selection and competitive sensitive.

Mr. MILLER. Well, I guess we are in that type of a meeting now where we would be able to keep that under cover.

Would that affect what is going on? We would not be publishing that information.

Mr. MURTHA. This is a closed hearing.

Mr. MILLER. Answer for the record how many handguns other than the 9mm will be in the inventory after the Beretta is fielded.

[The information follows:]

The 9mm will replace all .38 and .45 caliber handguns currently in the inventory. Ultimately, all handguns in the inventory will be 9mm. How many configurations, i.e. how many different weapons, will be in the inventory is dependent on which competitor wins the current competition, if the JSOR for the compact 9mm is approved other service requirements, etc.

SMALL ARMS MODERNIZATION PROGRAM

Mr. MILLER. It brings up another point. You mention in your statement, about the modernization of the Army small arms program, and it falls in this line at least. It continues with the sixth year buy of the M16A2 rifle, which incorporates new sites, improved muzzle compensator and a heavier barrel.

My question is, on the heavier barrel, here is something that our troops must carry, and with all the research and development that we have going now, it seems that we would be able to work into a material that would be stronger and lighter; not heavier.

General CHEN. I think we need to look at the whole rifle and the features that are associated with the M16A2 because with the improved capability, while there is a weight increase compared to the M16A1, the increase is only point nine pounds.

So we have the improved capabilities for a——

Mr. MILLER. Under certain conditions, one pound can feel like a ton at certain times. Is anything being done beyond that? Are we still looking to find a barrel that would be maybe one pound lighter?

General CHEN. In the case of the M16A2, we are now looking at any change in the barrel, but certainly as part of any future small arms systems that we have, we would look toward reducing the weight.

Mr. MILLER. Very good. Thank you.

Thank you, Mr. Chairman.

Mr. MURTHA. Are there any other questions? Mr Wilson has some questions for the record.

[CLERK'S NOTE.—Questions submitted by Mr. Wilson and the answers thereto follow:]

FIELD ARTILLERY AMMUNITION TRAILER (ARTRAIL)

Question. Last year, the Army tested an Israeli developed ammunition trailer for possible use for artillery re-supply. What was the purpose of these tests?

Answer. The Army tests on the trailer developed by URDAN Industrie, Inc., of Israel were to evaulate the concept of using a trailer for direct rearm of the M109 Artillery System. A concept test involves evaluation of the engineering aspects of how well an item of this type or similar type satisfies existing or emerging doctrine on the operations of the howitzer system. A concept test is not a test of a specific piece of equipment against a requirements document. A concept test is not a pass fail test.

Question. Testing at Fort Sill was to have been followed by additional testing in Europe. Why was the European testing cancelled?

Answer. Testing of the ARTRAIL was to be followed by testing in USAREUR. Upon completion of the testing, Fort Sill determined that (1) the proposed tests would not add significantly to the data required to evaluate the trailer; (2) there was no requirement within the U.S. Army for such an artillery trailer; and (3) the cost of the planned test could be saved and still achieve the original goals of the evaluation.

Question. What role did USAREUR play in the decision not to do additional testing in Europe?

Answer. USAREUR was unable to attend the testing at Fort Sill, however; the information on the Fort Sill evaluations and potential gains of testing in Europe were presented to USAREUR, and they were consulted prior to termination of this testing.

Question. What were the results of the tests at Fort Sill?

Answer. The results of the testing are given in the US Army Field Artillery Board (USAFAB) evaluation of the ARTRAIL. The operational test at Fort Sill was somewhat limited because the trailer could not be certified to carry live ammunition due to vibration profiles that are significantly more severe than current US vehicles. The trailer was used with inert ammunition until actually in a firing position when it was uploaded with live ammunition. Operational aspects of the trailer with respect to moving, occupying a position and uploading the trailer were not compatible with current or future operational concepts. Problems included: trailer is difficult to load because of ammo rack height; overall trailer height does not allow the howitzer to fire in all directions without deadspace; steering chains must be unhooked from the howitzer before the firing spades can be emplaced and then be reattached; in a loader failure in the howitzer the trailer conveyor must be disengaged to allow the crew to hand ram the projectile. If a trailer of any type was adopted a massive retraining effort would be required. The trailer was able to traverse the same terrain as the howitzer but performance was degraded as the howitzer is not designed to tow a 7-ton trailer.

Question. Did the Army do a cost-benefit analysis of the use of trailers as resupply vehicles compared to other alternatives?

Answer. A cost-benefit analysis of the use of trailers against other alternatives was not done. The Army did do a Concept Evaluation of trailers as resupply vehicles for self-propelled howitzers at Fort Sill, OK from July 19, 1988 to July 28, 1988 using an Israeli ammunition trailer. The concent of using a trailer to resupply M109-series self-propelled howitzers did not meet doctrinal and operational requirements for mobility. Based upon the results of the concept evaluation no cost-benefit analysis was done.

Question. With procurement of the heavy Field Artillery Ammunition Supply Vehicle (FAASV) cut back drastically because of affordability, what alternatives is the Army considering to fill the requirement that was to have been filled by FAASV?

Answer. The Army has procured 675 FAASV. These FAASV are being fielded to forward deployed M109 self-propelled howitzer units in Europe and Korea and to the 2d Armored Division in CONUS. The older M548 ammunition carrier will continue to be used in the remainder of the M109 units. The M548 is less survivable than the FAASV and does not provide the same level of protection to crew and ammunition. We must insure that the limited quantity of FAASV that we will have are fielded to our first-to-fight, highest priority units. Even so we will have some CONUS based units equipped with the Howitzer Improvement Program (HIP) howitzer but without the FAASV. The long term solution is development of a new automated ammunition supply vehicle, the Forward Area Resupply Vehicle-Artillery (FARV–A). This is a companion to the Advanced Field Artillery System (AFAS) cannon for fielding in the FY2000 timeframe as a member of the Heavy Force Modernization Plan family of vehicles.

Question. What artillery resupply vehicles are funded in the fiscal year 1990 and 1991 budget?

Answer. There are no tracked artillery ammunition resupply vehicles funded in either fiscal year 1990 or 1991. The Field Artillery Ammunition Supply Vehicle (FAASV) was last procured in FY 1987. The last U.S. Army FAASV will be delivered on 31 May 1989. A total of 675 FAASV's were procured until the program was terminated in the FY 88 budget. The 675 FAASV's are sufficient to field field artillery units in Europe, Korea, and one division in the United States.

Question. The Army provided the technical feasibility report from the Fort Sill tests to the Israeli contractor. When will the user evaluation report be submitted?

Answer. The Army provided the technical feasibility report from the APG tests to the Israeli contractors. The US Army Field Artillery Board (USAFAB) Report on the Evaluation of the ARTRAIL was not part of the provisions of the leasing agreement for the trailer from URDAN Industries Inc. The Battleking Secretariat (TEXCOM, Fort Sill) has verbally approved release of the report to U.S. Government agencies on November 8, 1988. On March 20, 1989, HQ TRADOC approved release to the Israeli Government, not URDAN Industries. The release of the report to the Israeli government is being handled through TACOM–AMC command channels in accordance with Defense Exchange Agreement (DEA–A–71–IS–1137). The Israeli government can provide a copy of the report to Urdan Industries, Inc.

[Clerk's note.—End of questions submitted by Mr. Wilson. Questions submitted for the record and the answers thereto follow:]

M1 TANK PROGRAM

PRODUCTION PLAN

Question. While the budget includes 603 tanks in fiscal year 1990, including the Marine Corps, the out year projection is for 516 tanks per year. This is the minimum sustaining rate for one plant and the budget proposes to lay-away the Detroit tank plant in September 1991 at a cost of $71.3 million. We were told earlier that the minimum production rate for two plants was 576 per year. What is the difference in cost between producing 576 tanks at two plants and producing 576 tanks at the Lima plant only?

Answer. At the total program level, the cost to produce at the two-plant minimum sustaining rate of 576 tanks per year in two plants in FY 1990 is $1889.7 million. To produce the same quantity of tanks at only the Lima tank plant would cost $1868.3 million. In FY 1991 the comparable costs are $1971.5 million and $1944.3 million respectively.

Question. At what production rate would it actually be cheaper to produce at two plants rather than one?

Answer. Precise data is currently not available, but indications are the rate will be in excess of 70 vehicles per month (i.e., tank production at two plants is not expected to be more cost effective than at one plant until production exceeds 70 vehicles per month).

Question. What is the maximum production rate at Lima on a one, two, and three shift basis?

Answer. Given the surge capacity of 75 per month in assembly and 120 per month in fabrication of structures, on a 3–8–5 basis the breakdown is as follows:

	Shift 1	Shift 2	Shift 3	Total
Fabrication	48/mo	48/mo	24/mo	120/mo
Assembly	30/mo	30/mo	15/mo	75/mo

Question. Certain items for the M1 tank are produced only at the Detroit plant. What items are these and what is your plan for producing them after the Detroit plant is laid-away?

Answer. The manufacturing plant machines 34 parts and components. The major items are as follows:

Gun mount and kit
Commander's hatch assembly
Hubs and sprockets
Driver's hatch assembly
Turret platform assembly
Oil cooler bracket
Gear box assembly
Gun rotor assembly
Commander's independent thermal viewer cover assembly
Replenisher
Actuator
Commander's independent thermal viewer spacer
Gunner's primary sight housing casting
Gun trunnion

Weapon cradle

Weapon mount

General Dynamics Land Systems (GDLS) has been directed to locate alternate sources for any follow-on multiyear contract. A study is being performed that will identify effort, schedule and cost to out source (relocate) the 34 parts.

Gun mount production is currently maintained at GDLS and Rock Island Arsenal. Future procurement of gun mounts from both sources or from only one source (Rock Island Arsenal) will be dependent upon required production quantities and their inherent economics.

Question. How long would it take to get the Detroit tank plant back into production once it is laid away?

Answer. Current estimates are 15 to 18 months to re-open the Detroit tank plant once laid away.

Question. Is the budget fully funded in fiscal years 1990 and 1991 for ammunition, trucks, transporters, recovery vehicles, and other equipment to support the tanks which are budgeted? If not, by how much is it deficient?

Answer. Yes. The FY 1990 budget request supports total package fielding and sustainment of the FY 1990 Abrams procurement program.

Question. What would it cost to produce 576 tanks at two plants, so as to keep Detroit open? How much would have to be added to the budget in each fiscal year of the five year budget to do this?

Answer. The additional cost through the FYDP to keep both plants operational at the MSR and produce the MIA2 as per the President's Budget is $731.8 million.

	Fiscal years—					Total
	1990	1991	1992	1993	1994	
Budget ($M)	1795.3	1833.0	1754.4	1709.0	1698.4	8790.1
Alt Program ($M)	1889.7	1971.5	1912.4	1866.4	1881.9	9521.9
Difference ($M)	94.4	138.5	158.0	157.4	183.5	731.8

Question. How much would have to be added for ammunition, for trucks, for transporters, for recovery vehicles, and for other equipment in each fiscal year of the five year budget to support 576 tanks per year instead of 516?

Answer. The procurement of 576 tanks per year vice 516 tanks per year results in one additional tank battalion per year being procured and fielded. The non-recurring cost for additional support equipment to support this additional battalion is $300 thousand. The recurring cost for ammunition to operate each additional battalion is $3.4 million per year.

Question. How much would have to be added for operation and maintenance and for spares?

Answer. The operations and maintenance bill for an additional M1A1 battalion is an increase in $960 thousand over the programmed amount to operate that same battalion as an M1 battalion. This takes into consideration the higher repair parts factor

($58.00 per mile vice $38.00 per mile) and the resultant increase in funding required to satisfy an OPTEMPO of 800 miles.

For each additional M1A1 battalion fielded, an M60 battalion would be displaced from the Reserve Component and M1 battalion would take its place. The non-recurring cost for establishing an M1 battalion where an M60 battalion previously existed is $3.4 million per battalion. There is no additional ammunition cost since the M1 fires the same ammunition used in the M60 tank.

BLOCK II TANK PROGRAM

Question. The Block II tank, called the M1A2, enters production in fiscal year 1991. Has a firm decision been made on the configuration of the M1A2? If not, what alternatives are being considered?

Answer. The Army briefed the Defense Acquisition Board on its Block II program in December 1988. The components briefed at that review were as follows:

—Survivability Enhancements
—Commander's Independent Thermal Viewer
—Improved Commander's Weapon Station
—Carbon Dioxide Laser Range Finder
—Position/Navigation Equipment

All of the elecro-optic improvements to the tank are to be integrated through the use of a data bus and power bus architecture—sometimes referred to as the core tank or systems integration package.

At this time, the Army intent is to carry two additional elements of the Block II design—Driver's Thermal Viewer and Intervehicular Information System—through full scale development to demonstrate fully the ability to incorporate these systems into a ground combat vehicle. As resources permit, these latter two would be included in procurement.

Question. A Defense Acquisition Board was held in December 1988. What was decided?

Answer. The Defense Acquisition Board authorized the Army to proceed with development and production of a tank modernization program to provide quality enhancements in lethality, survivability, and fightability within a $300 thousand per tank (FY 89 constant) cost cap. This approval is subject to a subsequent review of the M1A2 program cost, operational effectiveness, and test plans. To this end, the Army conducted a full Cost and Operational Effectiveness Analysis of the Block II program and determined that the full complement of improvements briefed to the Defense Acquisition Board increased the cost of the Abrams tank by 20% ($532 thousand), but yielded a systems effectiveness increase of 54% in the offense and 119% in effectiveness in the defense.

Question. Another Defense Acquisition Board is scheduled for May of this year. What will this DAB consider?

Answer. The next DAB review will discuss the cost and effectiveness of the Army's preferred alternative.

Question. What are the testing milestones for the M1A2 and when will a milestone III production decision be made?

Answer. The M1A2 testing milestones are as follows:

—Technical Testing begins in July 1990

—User Testing will occur from January to May 1991
—A production decision will be made August 1991.

Question. How much will the M1A2 cost compared to the M1A1?

Answer. The current estimate is that the M1A2 will cost $3.146 million, while the M1A1 will cost $2.614. This is a 20% increase in cost for a 54% increase in effectiveness in the offense and 119% increase in effectiveness in the defense.

Question. The budget includes $126,530,000 in fiscal year 1990 for the Block II program. What specifically will these funds procure and why should they be provided before testing is complete and a production decision is made?

Answer. This FY 1990 funding requirement is for prime and subcontractor Block II non-recurring activities in preparation for production. Included are:

—Design and development (Tools, fixtures, test equipment, oven, cooler, stations etc.)
—Manufacturing preparation (Route and process sheets, material handling analysis, review of drawings etc.)
—QA Planning (MRB planning, inspections, production review, manufacturing, QA inspection, vendor survey)
—Quality production process
—Fabrication of five pilot tanks for technical and user testing
—Government and contractor technical support and engineering.

These estimates are based on not to exceed ceiling prices and engineering estimates subject to adjustment upon General Dynamics Land Systems (GDLS) finalized vendor negotiations and proposal submit.

Testing activities scheduled prior to the planned funding dates for the non-recurring requirements are shown below:

1st Qtr 1990—Three months of brassboard testing completed.
3rd Qtr 1990—Contractor brassboard and engineering design test completed.
4th Qtr 1990—Contractor testing 70% complete and Government testing 20% complete.

The funding is required to achieve the currently planned August 1992 delivery of the first M1A2 tank. Funding is required for tools and test sets 30 months in advance of delivery. Funding for long lead materiel for currently-produced electronics is required 18–20 months in advance of delivery to the government. For new electronics, the requirement is 24 months. If funding was not in place until after the production decision, there would be a slip in the production date by 21 months. This represents unacceptable risk given the continued improvement in quality in Soviet tanks and is not a prudent approach to modernization of the forward-deployed force. The Block II/M1A2 program is designed to field a survivable, lethal, and fightable tank in quantity to meet a mid-term threat. To delay the production and deployment of the M1A2 by an additional 21 months—to mid 1994—is in direct disagreement with one of the underlying principles of the Army's total program for continued modernization of the force—Field Inside the Opponent's Modernization Cycle.

TANK PROCUREMENT STRATEGY

Question. As recently as last August the Army told the Committee that $1,131,100,000 would be required to procure the 545 tanks in the fiscal year 1989 budget. Congress appropriated $1,126,000,000 for a reduction of $5.5 million. It now appears that you will be able to procure 555 tanks with what was appropriated. Why were cost estimates so poor?

Answer. Previous estimates were based on existing assumptions and data that were valid at that time. The subsequent program dynamics affecting the original FY 1989 President's Budget submit are delineated as follows:

The budget submit included $30.0 million for Diehl track. The contract award for Diehl track was delayed as a result of protest and the less costly FMC T158 track ($14.1 million cost avoidance) was procured.

Other program changes resulted in an additional $15.8 million in cost avoidance.

As a result, a total cost avoidance of $29.9 million was available which offset the reduction of $5.5 million and resulted in a surplus of $24.4 million to be used to procure 10 additional tanks in FY 1989.

Question. Between fiscal year 1988 and 1990 the unit cost of the tank increases by 24 percent from $2.378 million to $2.957 million. In fiscal year 1991 there is an additional 25 percent increase to $3.693 million. Explain these increases.

Answer. The Weapon System Unit Cost (WSUC) increase is due to 1) inflation; 2) configuration change (introduction of Block II, production non-recurring and production hardware delta costs); and 3) decreased production volume (the current multiyear contract ending mid-FY90 is based on a production rate of 60/month, 2 plant assembly; the follow-on contract will be at the minimum sustaining rate (43/month) for 1 plant assembly).

[In millions of dollars]

	Fiscal years—			
	1988	1989	1990	1991
M1A1 WSUC	$2,378	$2,378	$2,378	$2,378
Inflation		.104	.213	.326
Configuration			.282	.728
Production rate			.084	.252
	2.378	2.482	2.957	[1] 3.684

[1] Current Program Estimate.

Question. The budget proposes a second multiyear contract for the M1 chassis. How will the proposed contract differ from the current one?

Answer. They will be very similar except the current multiyear provides for a monthly rate ranging from 70 to 60 tanks per month with two tank plants, while the new multiyear is planned to provide for a monthly rate of 43 tanks per month with one tank plant.

Question. How many of the tanks in the fiscal year 1990 budget will be procured under the old contract and how many under the new one?

Answer. At the total program level, 299 will be procured under the existing contract, and 304 are proposed to be procured from the first increment of a follow-on multiyear contract.

Question. How will the new multiyear deal with the Block II changes since the final configuration and costs are not now known?

Answer. The multiyear will be negotiated for M1A1 vehicles. The Block II changes will be incorporated and negotiated as a change to the contract.

Question. What variation in quantity clause will be included in the contract? How will the contract accommodate known and prospective foreign sales?

Answer. There will be no "variation in quantity" clause, nor an option/provision to increase/decrease quantity. If additional quantity arises through foreign sales, the vehicle contract quantity will be changed thru a new procurement action, implemented by a contract modification. Major government furnished equipment contracts are planned to include option provisions to cover known and potential foreign sales.

Question. For the record, describe in detail the procurement strategy for each of the major government-furnished components identified on the P–22 form.

Answer. The acquisition strategy for the major items are as follows:

Item	Strategy
Engine	Sole Source/Multiyear Procurement.
Transmission	[1] Sole Source/Multiyear Procurement.
Final Drives	Competitive/Multiyear Procurement/Small Business.
Fire Control	[2] Sole Source/Mix of Single Year and Multiyear Procurement.
Track	Competitive/Existing Multiyear Procurement.
Roadwheels	Competitive/Single Year Procurement.
Gun Mounts	Dual Source to GDLS and RIA or Sole Source to RIA (TBD).
Gun	Sole Source/Single Year from Watervliet Arsenal.

[1] FY 1990 Single Year.

[2] Partial Competitive.

FOREIGN SALES OF THE M1 TANK

Question. Foreign sale of the M1 tank has been announced for Egypt ———. What are the details of each of these, to include co-production arrangements and production schedules?

Answer. In November 1988, the Secretary of Defense signed a Memorandum of Understanding with the Government of Egypt for co-production of the M1A1. This program will result in 555 tanks being produced for use by Egypt. The first 15 tanks will be produced in the United States, while the remaining 540 will be co-produced in Egypt with decreasing contribution by the United States. On average, the U.S. contribution will be 60-percent of the value of the tank. ———.

Question. In these two cases, how will the configuration of the tank differ from the one being produced for the Army?

Answer. The Memorandum of Understanding with Egypt specifies that the M1A1 co-produced with that country will be in the same configuration as the M1A1 produced for Army use in May 1988.

The tanks to be produced for use by ——— will be in either the ——— configuration based on the final government-to-government agreement. ———.

IMPROVED TANK RECOVERY VEHICLE

Question. Have those deficiencies identified during testing been corrected?

Answer. It appears that the contractor has fixed the erratic failures of the recovery vehicle's main and hoist winches. Technical testing was halted on 10 April and the winches were and hydraulics were instrumented to determine the cause of the failures. As a result of their analysis, the model of the main winch pump and main winch motor was changed, and the directional control valve was moved on the main hydraulic line next to the pump. The new configuration successfully completed 27 testing cycles including a 175 foot, 90% pull which maintained this year and what are the results?

Question. What testing has been conducted this year and what are the results?

Answer. Performance testing and reliability, availability, and maintainability tests were begun February 27, 1989 at Aberdeen Proving Ground. All testing has been halted with program termination on 28 April, 1989.

Question. Has anything happened since last December to cause you to believe that the selection of the M88A1E1 was incorrect?

Answer. The Army still feels that its selection of recovery vehicle was correct.

BRADLEY FIGHTING VEHICLE

Question. Fiscal year 1989 advance procurement funding of $30 million was intended to support fiscal year 1990 procurement of 500 vehicles. How can this funding be sufficient to support procurement of 600 vehicles and the economic order requirements of a multiyear contract?

Answer. The Army, as a result of the selection of Texas Instruments as the second source for the TOW 2 subsystem (T2SS) components, has been able to drastically reduce the long lead requirements for the Hughes Aircraft Corporation for the same components. This reduction enabled the Army to finance the economic order quantity (EOQ) requirements for both the transmission (FY 1989–91) and the turret drive system (FY 1988–91) multiyear procurements. The EOQ funding for the vehicle and T2SS multiyear procurements (FY 1990–94) starts in FY 1990.

Question. It has been widely rumored that reductions to the Bradley procurement profile are being considered as part of the Bush budget revisions. Please comment.

Answer. At one time this option was being considered for FY 1992, FY 1993 and FY 1994; however, it was discarded. Reductions to the Bradley procurement profile would have increased the fielding gap for forward deployed units between the Bradley and the Abrams tank in the Army's heavy divisions and would have resulted in reduced multiyear procurement savings. The Bradley multiyear procurement closes the fielding gap for forward depolyed units by the end of FY 1993 and results in savings of $193.6 million (12 percent) over the multiyear procurement when compared to single year procurements.

BRADLEY FIGHTING VEHICLE MODIFICATION

Question. Last year Congress made a general reduction of $17.9 million to the $62.9 million that the Army budgeted for Bradley Fighting Vehicle modifications. Why did the Army apply this reduction by zeroing the high survivability modifications rather than apply it to other modification programs?

Answer. The entire amount of the decrement was applied against the high survivability portion of the MOD line in order to complete Block I (conversion of A1(-) Bradleys to the full A1 configuration by converting from the Basic TOW subsystem to the TOW 2 subsystem) and the conversion of the FY 1987 production M2A2/M3A2 500 HP Bradleys to the 600 HP configuration.

Question. Last year, the procurement of armor tiles was postponed pending a performance specification competition. What is the status of the armor tile program and why is procurement not funded until fiscal year 1991?

Answer. Congressional guidance to the Army was to competitively procure armor add-on tiles for the Bradley. The earliest contract award for a competitive procurement is projected for January 1991; therefore FY 1991 is the first year armor tile procurement is funded. The Army will not proceed to a contract award until the appropriate congressional committees have been notified of its decision. The following milestone schedule is provided: (1) Phase I: Issue a request for proposal (RFP) to industry soliciting proposals for add-on armor tiles—10 January 1989, (2) RFP closes—31 March 1989, (3) Proceed to Phase II (selection of up to three sources)—May 1989, (4) Receive Phase II tile sample—July 1989, (5) Complete sample tests and analyses—October 1989, (6) Proceed to Phase III (down select to two sources)—November 1989, (7) Received Phase III tile samples—February 1990, (8) Complete confirmatory tests and analyses and receive best and final cost proposals—December 1990, (9) Proceed to contract award—January 1991.

Question. The budget includes $45 million for high survivability modifications in fiscal year 1990. What specifically will be procured with these funds?

Answer. In FY 1990, $45 million is budgeted for the procurement of 376 high survivability kits. These kits, along with the addition of the 600 HP powertrain, will convert the A1 configured Bradley to the M2A2/M3A2 Bradley. The following changes make up the high survivability kit and will be incorporated into the vehicles: spall liners in the troop compartments, 30mm armor protection, improved final drives, hull stiffening, new torsion bars, internal ammunition restowage, hydraulic engine access door, and provisions for add-on armor tiles.

Question. The budget justifications indicate that a total of 1,371 high survivability modification kits will be procured at a cost of $166.7 million. Will this retrofit all vehicles in the Bradley fleet? If not why not?

Answer. No, this funding is not sufficient to retrofit all vehicles in the Bradley fleet. It retrofits only the 1,371 A1 configured vehicles. Currently, the Bradley fleet is composed of 2,300 Basic Bradleys (FY 1980–84 production), 1,371 A1 configured Bradley (FY 1985–86 production), and 596 (FY 1987 production through 31 March 1989) A2 500 HP configured Bradleys. Because of affordability, there is no plan to upgrade the 2,300 Base Bradley with survivability improvements.

Question. Provide for the record the obligation status and contract details for all prior year high survivability modifications funding.

Answer. As of August 1988, $23.3 million of the $26.4 million budgeted for Bradley high survivability modifications has been obligated. An initial contract award for 234 high survivability kits was made in August 1988 for $23.3 million with FY 1987 and FY 1988 funds ($7.4 million and $15.9 million respectively). Contract deliveries are scheduled to begin in January 1990. The remaining $3.1 million ($1.0 million of FY 1987 and $2.1 million of FY 1988) is reserved for engineering changes to ensure that the high survivability modification kits conform to the Bradley A2 production vehicles currently being produced.

Question. The budget also includes $32.7 million for procurement of a new powertrain for the Bradley. What is the status of this program?

Answer. The new powertrain includes the 600 HP engine and the reliability improved HMPT 500–3 transmission. Both components have successfully completed First Article Testing and deliveries are being accepted against the FY 1988 production contracts. An options to the FY 1988 600 HP engine production contract was exercised in December 1988 for a quantity of 240 kits. The remaining FY 1989 quantity of 219 will be awarded in August 1989. The HMPT 500–3 transmission kit buy was awarded in August 1988 for a quantity of 459 kits.

Question. What is the procurement strategy for the powertrain modification program?

Answer. The new powertrain includes a 600 HP engine and a reliability improved HMPT 500–3 transmission. A quantity of 240 600 HP engine kits was awarded as an option to the FY 1988 production contract in December 1988. The remaining FY 1989 quantity of 219 and the FY 1990 quantity will be part of the FY 1989 firm fixed price requirements contract. This contract will be awarded on a non-competitive basis to Cummins Engine. The 600 HP engine is a modified version of a Cummins commercial engine developed at their expense. The technical data package remains proprietary to Cummins and the Army's efforts to acquire the technical data rights have not been accepted. The 600 HP engine is currently being bought on annual procurements sole source to Cummins. No change in this procurement strategy is expected. The HMPT 500–3 transmission buy for 459 modification kits was awarded in August 1988. Bradley HMPT 500–3 transmissions and transmission modification kits are being bought sole source from General Electric (GE) of Pittsfield, Massachusetts because the technical data package for the transmission must first undergo a validation and certification process, followed by a competitive acquisition effort with qualification testing requirements which are estimated to be completed by August 1991. Until this process is successfully completed, transmissions and modification kits will be bought from GE to assure quality and hardware compatibility of transmission parts. The transmission is being bought under a sole source mutliyear (FY 1989–91) contract to GE. A follow-on multiyear procurement is anticipated for FY 1992–94.

Question. The budget justification indicates that you will procure a total of 8108 powertrain modifications for $238.1 million. Will this modify all fielded Bradleys?

Answer. No. The complete powertrain (600 HP engine, engine integration parts, and the HMPT 500–3 transmission) will not be applied to all fielded Bradleys. The 2,300 Basic Bradleys will be modified only with the HMPT 500–3 reliability improved transmission, on an attrition basis. The powertrain upgrade was initiated to retain mobility compatibility with the M1 tank as the Bradley's weight grew when the survivability enhancements were added. The 600 HP engine will not be applied to the 2,300 Basic Bradleys because they still retain mobility compatibility with the M1 tank. The Army, at this time, has no plan to add the survivability enhancements to its Basic Bradleys due to affordability.

Question. What is the basis of your cost estimate for the powerpack modifications?

Answer. Cost estimates were based on negotiated prices from the fourth quarter FY 1988 and first quarter FY 1989 contract awards of the 600 HP engine, engine integration kits and HMPT 500–3 transmission kits. The cost estimates also include engineering estimates for engineeering change proposals for the powerpack kits to assure conformity with the A2 production vehicles.

Question. What will happen to the old powertrain components as they are replaced?

Answer. Two major components and several less significant repair parts are affected by the change from the A1 to A2 configuraton. The plan for re-use is as follows: (1) Transmission—all transmissions installed in A1 configured Bradleys or in the supply system are scheduled for conversion to the A2 version HMPT 500–3 transmission. The new transmission will be downward compatible and provides several features which are anticipated to improve Multiple Launch Rocket System (MLRS) performance considerably. The Army projects that the Operations and Support cost savings from extended life and reduced parts stockage will make it economically beneficial to convert all transmissions. The parts removed by conversion will be scrapped. (2) Engine—only the 600 HP engine will be used in the Bradley A2 configuration. There are two uses for the 500 HP engine. First, these engines will be used to support the 2,300 Basic Bradley fleet and several hundred MLRS vehicles. New production MLRS and some other derivative vehicles planning to use the MLRS chassis will continue to use 500 HP engines. The Army plans to offer the remaining engines as government furnished equipment to future year production contracts for the MLRS and derivatives. All other repair parts removed will be screened through the supply system to determine needs to maintain the older vehicles in the fleet and will be utilized as necessary.

Question. Provide for the record the obligation status and contract details for all prior year powertrain funding.

Answer. The Army's prior year (FY 1987 and FY 1988) funding for the HMPT 500-3 transmission was for the amount of $12.0 million. Of this, $11.5 million has been obligated and $0.5 million is reserved for contingent liabilities with a target date of obligation of April 1989. The Army budgeted no prior year funding for the 600 HP engine modification kit. The first year of funding is FY 1989. A total of $9.2 million in prior year funding was budgeted for engine integration kits. Of this amount, $7.8 million was obligated in August 1988 for the contract award of 459 kits. The unobligated balance of $1.4 million is reserved for engineering changes to ensure the engine integration kits conform to the Bradley A2 production vehicles.

120 MM MORTAR

Question. Section 111(b) of the 1989 Defense Authorization Act prohibited the Army from obligating fiscal year 1989 procurement funds for the 120mm mortar until a new mortar master plan is submitted and a certification is made that the Five Year Defense Plan includes funding for the plan. When will the Army comply with these requirements?

Answer. The revised Army Mortar Plan has been prepared and is in the final stages of formal approval. Upon approval, the plan will be submitted to the Congress along with certification that the Five Year Defense Plan includes funding for the mortar plan.

Question. What options are being considered in the mortar master plan with respect to the mix of 4.2-inch and 120mm mortars in the Army inventory?

Answer. The Army's intent is to replace the 4.2-inch mortar system with the 120mm mortar. However, because of overall budget affordability, the Army will be unable to procure the 120mm mortar system as rapidly as it might otherwise desire. The current strategy is to procure the 120mm mortar in "force packages." Sufficient 120mm mortars and ammunition are currently programmed to field forward deployed forces in Europe and Korea, plus the 9th Infantry Division. The Army intends to fund additional force packages as it becomes affordable to do so.

Question. What is the intended procurement strategy for the 120mm mortar and the associated ammunition?

Answer. Assuming a successful test program, the Army will procure sufficient mortars and nondevelopmental ammunition from offshore production, under a Firm Fixed Price contract option, to achieve early fielding of the 9th Infantry Division. All remaining production of weapons will be at Watervliet Arsenal, under a Category 2 Fixed Price purchase order, as a result of the Arsenal Act comparison conducted during 1988. Significant quantities of components, spares, and repair parts will be competitively procured onshore as part of the Watervliet Arsenal price proposal. The family of enhanced ammunition currently under development (high explosive, smoke, and illumination cartridges) will be produced onshore. The first two years of onshore ammunition production will be awarded to Martin Marietta Ordnance Systems, the developer and winner of the Competitive Weapon Evaluation, under Firm Fixed Price options. Subsequent production will be competitively procured from onshore sources. In order to improve the affordability of the 120mm mortar system, only high explosive and smoke munitions will be fielded. The illumination cartridge will be developed, but not procured, as a result of the proliferation of night vision devices in heavy forces. A full-range training cartridge was part of the initial enhanced ammunition development program; however, price proposals from each of the competitors in the Competitive Weapon Evaluation showed no cost advantage over the high explosive cartridge. A short-range practice cartridge may be developed in the future, depending on success of the M880 Cartridge for the Improved 81mm mortar.

Question. What are the testing milestones for the mortar and ammunition and when will the system be type classified?

Answer. The weapons and nondevelopmental ammunition recently completed Safety Certification Testing in preparation for Operational Testing. Problems were discovered with high blast overpressures in the carrier variant, and performance of the nondevelopmental ammunition in cold conditions. Based on data obtained during retesting of the nondevelopmental ammunition, initial indications are the blast overpressure problem should not interfere with conduct of Operational Testing. The blast overpressure problem appears to have been resolved with the addition of flash reducer to the propellant, and a blast attenuation device. A solution to the cold performance problem is currently being tested by the contractor and, unless resolved, would result in the Army's inability to achieve early fielding with nondevelopmental ammunition. The cold performance problem will not interfere with the conduct of Operational Testing of the weapons, currently scheduled for late May through September 1989. The weapons and nondevelopmental ammunition are scheduled for Type Classification for Limited Production in December of this year. The enhanced ammunition development program is progressing and is scheduled for Technical Testing March through July 1990. A system Follow-on Test and Evaluation to test the weapons with the enhanced ammunition, is scheduled for August through October 1990, and will result in Type Classification Standard for the weapons, and Type Classification for Limited Production for the enhanced ammunition family. The family of enhanced ammunition will be Type Classification Standard in July 1992, following First Article-Initial Production Testing.

Question. The first 120mm mortar and ammunition were funded in fiscal year 1987. These items were to be procured for testing and for fielding to the 9th Division from offshore. What is the status of that contract, including delivery milestone?

Answer. Twenty-eight weapons plus approximately 6,500 rounds of nondevelopmental ammunition were procured in June 1988 with RDTE funding to conduct operational testing. Fiscal year 1987 weapon and ammunition appropriation funds will lapse prior to the Army's ability to obligate as a result of delays in reinstating the 120mm mortar program following its termination in the FY 1989

Amended Budget Submission, and testing delays related to nondevelopmental ammunition performance. Contract award for the offshore weapons and nondevelopmental ammunition to equip the 9th Infantry Division is currently scheduled for January 1990, assuming a successful test program, with initial deliveries due by May 1990. First Unit Equipped is scheduled for October 1990. The Army intends to use a combination of FY 1989 and 1990 weapon appropriation funding, and FY 1988 and 1989 ammunition appropriation funding to procure the offshore weapons and nondevelopmental ammunition.

Question. What is the status of the 120mm mortar program in the Bush budget revisions?

Answer. Procurement funding was not affected in the FY 1990 Amended Budget Submission. Seven million dollars in RDTE funding was added to the 120mm mortar program in the Amended Budget Submission.

M1 TANK MODIFICATIONS

Question. Last year, the Army was contemplating modifying all 3,268 M1 105mm tanks to have the 120mm gun now on the M1A1 tank. Section 1212 (b)(3) of the 1989 autnorization act required that $30 million of the $90 million in prior year M60 tank modification funds be used only for facilitation of Anniston Army Depot for this purpose. What is the status of this program?

Answer. The Army does not now intend to conduct the upgrade program contemplated last year.

Question. Has the Army proposed to change the 1989 authorization act to conform to its current plans?

Answer. The Army intends to comply with the spirit of the FY 1989 Authorization Act and has requested authority to reprogram the $30 million identified for "facilitization of the Anniston Army Depot and initiation of the retrograde and modification program for M1 tanks" to the M1/M1A1 modification program to fabricate selected improvements for the Abrams tank for survivability, safety, operational enhancement, and life cycle cost reduction. Our reprogramming identified $30 million in effort to be accomplished at the Anniston Army Depot.

Question. The Army has proposed a $30 million fiscal year 1988 reprogramming for four M1 tank modifications. Explain and justify each of these and tell us why they were not forecast last year.

Answer. Reprogramming is based upon availability of the Technical Data Package and urgency of the specific modifications. The four programs are as follows:

(1) Long Term Battery Cable Fix—This safety related improvement replaces the negative current bus bars with a flexible cable design.

(2) Commander's Hand Guard—This safety related improvement is intended to prevent injury to the tank commander's hand while the main gun is firing.

(3) Turret Circuit Safety—This safety related improvement applies newly designed handles to the commander's weapon station and applies changes to circuit boards to prevent inadvertent firing of the commander's machine gun.

(4) M1/IPM1 Heater Air Flow—This operational improvement is intended to provide for comfort and safety, and additional heat delivery to the crew and driver's compartment.

Each of these programs is identified for execution at the Anniston Army Depot.

Question. What is the total cost of each of the modifications involved in the reprogramming?

Answer. The engineering estimates and current estimates ($ millions) for each of these modifications if performed at the Anniston depot are as follows. Final estimates will be validated in June 1989:

Modification	Engineering estimate	Current estimate
Long Term Battery Cables	1.2	7.7
Commander's Hand Guard	0.5	0.2
Turret Circuit Safety	26.9	20.6
Heater Air Flow	1.4	1.5

Question. For the record, provide the testing and contract milestones for each of the four modifications and describe the procurement strategy.

Answer. The milestones are:

Long-Term Battery cables:		
Vehicle testing completed	ECP Approval Date	October 1988.
July 1988 at Yuma Proving Ground	Procurement TDP	January 1989.
No further testing planned	Anniston Contract Award	July 1989.
	First Hardware Avail	July 1990.
Commander's hand guard:		
Vehicle testing has consisted of two units being placed in tanks at Fort Knox.	ECP Approval Date	September 1988.
	Procurement TDP	March 1989.
	Anniston Contract Award	July 1989.
	First Hardware Avail	July 1990.
Turret circuit safety:		
Engineering trial installation and logistics validation of work order procedures conducted concurrent with ECP approval.	ECP Approval Date	January 1989.
	Procurement TDP	May 1989.
	Anniston Contract Award	July 1989.
Hardware is identical to that on M1A1 in production today	First Hardware Avail	July 1990.
Heater air flow:		
Engineering trial installation and logistics validation of work order procedure conducted concurrent with ECP approval.	ECP Approval Date	September 1988.
	Procurement TDP	June 1989.
	Anniston Contract Award	July 1989.
Hardware is indentical to that on M1A1 in production today	First Hardware Avail	July 1990

Question. The Block II M1 tank, called the M1A2, enters production in fiscal year 1991. What plans does the Army have to incorporate Block II changes on tanks which have already been produced and what would be the cost of such an effort?

Answer. For reasons related to affordability, the Army does not currently intend to retrofit the Block II improvements on the basic M1A1 design.

Question. The modification budget includes $10.1 million for the first procurement funding for a fire control enhancement system. This is expected to be a $438.3 million program. Describe and justify it.

Answer. The program is an operational improvement to the tank system. The improvement will modify the thermal receiving unit in the thermal imaging sight and provide enhanced performance in the battlefield environment by reducing system vulnerability to directed energy weapons. The improvement also makes the thermal receiving unit fully compatible with optically improved Gunner's Primary Sights (GPS).

Question. What is the procurement strategy for this modification?

Answer. The current strategy calls for sole source award to Hughes Aircraft Corporation for the purchase of all retrofit hardware. Fielded thermal receiver units (TRUs) will be replaced with optically TRUs by organizational level maintenance personnel.

Question. What are the contract and testing milestones?

Answer. The milestones for the fire control enhancement are as follows:

—Testing Initiated, 3d Qtr FY 1984.
—Evaluation Completed, 2d Qtr FY 1985.
—Production Incorporation, 2d Qtr FY 1988.
—Retrofit Procurement TDP, 2d Qtr FY 1990.
—Retrofit Contract Award, 3d Qtr FY 1990.
—First Kit Hardware, 3d Qtr FY 1991.
—First Kit Applied, 4th Qtr FY 1991.

Question. The budget back-up sheets indicate that the fiscal year 1990 budget for this modification is for long lead items. Why is advance procurement being used when modification programs are normally fully funded?

Answer. The Army plans to buy an initial quantity of 122 Thermal Receiving Units to use as a repair cycle float, and has identified the funds to satisfy this requirement for modified sights as "Long-Lead." In point of fact, these are not long lead items in the same vein as advance procurement, but they represent a float quantity to be used to accommodate the retrofit schedule for the program. It is planned that sights on fielded tanks will be removed from the tanks and returned to the contractor for modification. This initial float quantity allows for the return of night sights to the contractor for re-work to the new configuration and subsequent redistribution to the field for application. Upon completion of the retrofit, this float quantity will resort to spares status.

Question. Last year you expected to be spending $9.7 million in fiscal year 1988 for protection for fire control operators. Why are you now proposing to spend only $600,000?

Answer. The reduction in cost is based upon a change in the procurement and application strategies for this improvement as follows:

Old Strategy: Sole source contract for 2045 each kits. Total program cost was $40.6 million; kit cost was $20,357 per kit.

New Strategy: Competitive breakout of hardware to Kollmorgen (gunner's auxiliary sight and commander's weapon station sight components) and General Dynamics (gunner's primary sight and vehicle integration components) with Mainz Army Depot performing the actual modifications to the tank system. M1A1 total program cost $31.9 million; kit cost $11,382 per kit.

Competitive procurement of hardware plus purchase of majority of hardware kits utilizing FY87 program dollars has substantially reduced the cost of the overall program and results in operational and support cost avoidance.

Question. Last year you expected to be spending $4 million in fiscal year 1988 for mine roller mounting kits. Why are you now proposing to spend $6.1 million?

Answer. Program delays resulted in the mine roller kits not being ready for procurement in FY 1987 as originally proposed, and the FY 1987 requirement was moved into FY 1988. The modification program was restructured (as a result of the addition of $30 million from the M60 program and changes in procurement strategy for three other programs) to accommodate this new requirement.

Question. Last year you expected to be spending $3.9 million in fiscal year 1988 for the self cleaning air filter. Why is no funding now expected until fiscal year 1991?

Answer. Testing was accomplished as part of the Reliability, Availability, Maintainability program for the Abrams which is funded from the basic vehicle budget. Major testing issues developed at Yuma Proving Ground that cannot be resolved in the near-term. These relate to the intricate design of the air filter and the system's failure to demonstrate acceptable reliability, availability, maintainability, and durability.

Question. Last year you expected to be spending $3.4 million in fiscal year 1988 for the mobility diagnostic module. Why is no funding now expected until fiscal year 1991?

Answer. A parallel effort being resourced through System Technical Support for the basic vehicle program has resulted in development of a Digital Electronic Control Unit (DECU) for the engine. The DECU will achieve performance comparable to that anticipated for the mobility diagnostic module. The current strategy is to complete that development and introduce the DECU into the Block II configuration. Concurrent with that, the DECU will replace, through attrition, the current control unit.

Question. Last year you expected to be spending $3.0 million in fiscal year 1988 for the prime power interrupter. Why do you now expect to spend $5.8 million?

Answer. This modification was originally programmed for procurement in FY 1988 and FY 1989. When funding was withdrawn from the FY 1989 program, the effort was fully resourced in FY 1988 so that all necessary retrofit kit hardware could be procured at one time thus avoiding skip-year procurement/fielding efforts.

Question. The current budget back-up book shows fiscal year 1988 funding for ten M1 modification programs which were not shown on the last years budget back-up book. Please explain and justify each one.

Answer. New modification programs were added to the mod line budget when it was determined that $30 million would be reprogrammed into the FY 1988 program. Funding within the modification line was reallocated primarily from three sources. The three sources were: (1) $9.1 million from the Protection for Fire Control Operators modification due to a change in procurement strategy, (2) $3.9 million in the Self-Cleaning Air Filter when the engineering requirement was funded from the vehicle budget using Reliability, Availability, Maintainability, improvement funding and (3) $3.4 million budgeted for Mobility Diagnostic Module was funded using the vehicle budget. Justification for the programs is as follows:

a. Counterbalance Kit: The IPMI has a heavier gun shield than that of the M1 tank resulting in a weight bias toward the muzzle end of the gun. The Counterbalance Kit will correct this shortcoming by adding weight to the gun torque brackets.

b. Loader's Hatch Latch: This product improvement will decrease the probability of injury to a tank crew member by a loader's hatch striking him on the head. The current latch is replaced by an externally mounted latch assembly.

c. L Mod "B": This product improvement consists of two separate improvements which have the collective effect of facilitating maintenance and operation of the tank. With maintenance more easily performed, it is anticipated that component life will be prolonged. The improvements are replacement of the top deck cooling system to improve and eliminate the entry of debris, and the replacement of the traversing mechanism to reduce the potential of runaway turret rotation.

d. K-4 Relay: The current K-4 Relay and circuit has the potential to cause engine over fuel with resultant thermal damage. This modification will eliminate the problem.

e. Shock Mounts: Recent M1 ballistic shock testing indicated that a number of circuit board assemblies failed during ballistic testing. This improvement consists of rubber grommets installed on bolts securing various components in a manner which will allow the components to withstand ballistic shock.

f. Heater Air Flow: This is an operational improvement that will insure driver safety and comfort by increasing the heat delivery to the crew and driver's compartment. Application will redesign heat outlets and increase heat distribution in the driver's compartment eliminating any compromise of the driver's ability to control the tank.

g. Turret Circuit Safety: This safety improvement applies newly designed handles to the commander's weapon station and incorporates a change to the firing circuit design to preclude inadvertent firing of the commander's machine gun. This modification also provides a fail-safe system which guarantees the availability of hydraulic pressure for application of the vehicle parking brake.

h. Fire Prevention Program 1 and 2: These safety improvements add design improvements which will decrease the probability of fires in the forward and rear engine compartment areas and decreases fuel-related fires. The improvements specifically add clamps to the smoke generator, oil cooler shafts, and fuel lines, and change the alternator power cable and air baffle. Additionally, this improvement reworks the seals in hydraulic pump and power takeoff shaft actuator of the AGT 1500 engine.

i. Engine Fire Shield: This is a safety improvement which adds fire retardant material between the hot portion of AGT 1500 engine and flammable fluid sources. This modification will eliminate the primary source of engine thank fires.

j. Long Term Battery Cable: This is a safety and fire related improvement which replaces the negative current bus bar in vehicle battery compartment with a flexible design cable. This improvement, in conjunction with the prime power interrupter and short term battery cable fix, will eliminate the second major cause of fires in the Abrams tank.

k. Commander's Hand Guard: These safety related improvements are intended to prevent injury to the tank commander's hand by eliminating pinch points that occur when the main gun is fully depressed and firing.

M119 105MM LIGHT HOWITZER

Question. The budget includes $24.6 million for the fourth year of procurement of the M119 105mm light howitzer. This gun is being procured under a cooperative agreement with Royal Ordnance of the United Kingdom. Last year we were told that we would buy from Royal Ordnance 145 complete howitzers, 20 howitzers less cannon, 15 trail assemblies, and six million British Pounds worth of spares. What is the current agreement and why has it changed?

Answer. The current agreement requires the US Army to purchase 151 M119 howitzers and 6.8 million Pounds Sterling worth of spare/repair parts. These changes were made as consideration for changes (delays) to the contract delivery schedule.

Question. Last year we were told that 56 guns procured in fiscal year 1987 from Royal Ordnance would be delivered by December, 1988. What is your current projection and why has it changed?

Answer. Current projected delivery for the first 56 weapons will be August 1989. Delay in deliveries were a result of Royal Ordnance subcontractors and suppliers inability to meet accelerated schedules and maintain a quality product.

Question. Last year we were also told that all guns procured from Royal Ordnance would be delivered by January 1990. What is your current projection?

Answer. Delivery of the 151st M119 produced by Royal Ordnance will be August 1990.

Question. Has a revised delivery schedule been formally negotiated with Royal Ordnance? If so, provide it for the record.

Answer. The revised contract delivery schedule follows:

1988: July, 4; October, 4; December, 2.

1989: January, 3; February, 4; March, 5; April, 7; May, 7; June, 9; July, 6; August, 7; September, 9; October, 9; November, 10; December, 7.

1990: January, 9; February, 9; March, 9; April, 7; May, 7; June, 7; July, 7; August, 3.

Question. What penalties are in the contract for additional delivery delays?

Answer. The contract contains a clause that states that if the contractor's monthly deliveries become delinquent by one month, one howitzer is deleted from the contract and the License Agreement workshare requirement is reduced by the same amount.

Question. How has Royal Ordnance performed against the revised delivery schedule?

Answer. Currently, RO is approximately one month behind schedule, i.e., the contractor delivered the fifth howitzer for the March requirement on 28 April 1989.

Question. The first 12 American produced weapons were funded in fiscal year 1988. An additional 53 U.S. produced weapons were funded in fiscal year 1989. We were told last year that initial deliveries would be in February 1990 and August 1990, respectively from these two procurements. Why have these deliveries now delayed until May 1991 and August 1991?

Answer. Current U.S. Arsenal delivery schedule is:

1990: October, 3 (12 each).
1991: January, IPT; April, 3; May, 3; June, 3 (12 each); July, 4; August, 4; September, 4; October, 5; November, 5; December, 5 (12 each).
1992: January, 5; February, 5; March, 5; April, 5 (57 each).

The delays, February 90 to October 90 and August 90 to May 91, were due to problems in finding a suitable U.S. specification steel as an alternative to the U.S. and U.K. sources for the U.K. specification steel. No U.S. sources responded, therefore, the contract was awarded to a British source.

Question. What is the status or the Americanized technical data package from Royal Ordnance?

Answer. The drawings are currently being prepared by Royal Ordnance and delivery of the complete package is planned for December 1989. Once the drawings have been delivered, the package must be certified for competitive procurement and released for spare/repair part orders. Certification should be completed by June 1990.

Question. Given the delays in this program, why should additional guns be funded in fiscal year 1990?

Answer. The M119 is critical to the Light Division for artillery support and counterbattery fires. Without the M119 Howitzer, the Light Division's ability to fight and win will be severely reduced. The cancellation of funding for FY 1990, which would only affect U.S. Arsenal production, will cause a break in production. This break is caused by the production lead-time required prior to initial delivery and amounts to 21 months. The U.S. arsenals plan their programs as continuous production and develop their workload plans accordingly. Therefore, if the FY 1990 program were cancelled, the arsenals would have an additional set-up cost applied to the program for weapons ordered in FY 1991. Cancellation of FY 1990 funds would also affect the Army's ability to: (1) Support the Sample Data Collection effort on the fielded M119 howitzers. (2) Continuation of the Integrated Logistics Support for fielded M119 howtzers. (3) The engineering support at the U.S. Army Armament Research, Development and Engineering Center would be without funding for a period of time until the FY 1991 program started production. As a result, many of the key engineers on the M119 program would be shifted to other programs. The FY 1991 program would then be supported by new engineers which would cause a disruption to the total M119 effort. While production/quality assurance problems have caused some delays in deliveries, the overall program is on schedule and critical milestones will be met.

M109 HOWITZER IMPROVEMENT PROGRAM

Question. The budget includes $75.5 million for procurement of 40 Howitzer Improvement program (HIP) modification kits for the M109 155mm self-propelled howitzer. Initial procurement funding of $25.5 million was provided in fiscal year 1989. Last year we were told that prototype qualification testing would go from April to July, 1988, technical testing would go from September 1988 to April 1989, and initial operational test and evaluation would go from November 1988 to March 1989. What are your current milestones?

Answer. The milestones referenced are from the HIP planning schedule of 1987. The Prototype Qualification Testing (PQT) was completed in January 1989. Initial phases of the Technical Test (TT) began in December 1988 and will continue through October 1989. The critical subtests required to support a limited production decision will be completed in August 1989. Initial Operational Test and Evaluation (IOTE) will be conducted in June and July 1989. The Limited Production decision is scheduled for an ASARC in September 1989 but will likely be deferred to November 1989 depending on the results of the early subtests of TT.

Question. What additional testing is scheduled?

Answer. Technical Testing, Initial Operational Test and Evaluation and a follow on comparative Live Fire Test with HIP and M109A2/A3 howitzers will be completed on prototypes. Initial Production Testing will be conducted on the initial vehicles produced under the FY 1989 Procurement.

Question. What are the results of tests to date?

Answer. The following tests have been successfully completed:

Technical and Operational Test of HELP product improvements. Many of the reliability improvements incorporated in HIP are carry overs from the HELP program.

Engineering Design Testing of the M182E1 Gun Mount and M284 cannon. 5,400 rounds of actual firing and 150,000 simulated cycles proved the cannon to be safe, established fatigue and wear life and demonstrated ballistics comparability to the M199 cannon.

Engineering Design Tests of automotive subsystems demonstrated the effectiveness of the HIP suspension system and ability of the power pack to withstand the increased weight in a 4,000 mile road test.

Engineering Design test of vulnerability reduction measures determined the optimum mix of aluminum armor, steel overlay and Kevlar linings to be incorporated.

Technical testing of the Modular Azimuth and Positioning Systems (MAPS) and the Simplified Test Equipment-Expandable (STE-X) demonstrated these Government Furnished Equipments (GFE) were ready for systems integration.

Concept Exploration Phase (CEP) I and II and Force Development Test and Experimentation (FDTE) I and II were conducted to evalute the HIP tactics and operations and to refine the man-machine interface requirements of the HIP computers to guide the final software development.

The institutional Maintenance trainers and institutional Fire Control System trainers successfully completed their reliability demonstration.

Formal Independent Validation and Verification (IV&V) has been completed on the fire control system software.

Prototype Qualification Testing using two U.S. and two Israeli HIP prototypes, firing 2,900 rounds and driving 800 miles was completed, meeting the test objectives.

Logistics Demonstration/Maintainability Demonstration (LD/MD) successfully demonstrated the supportability of the system.

Live fire vulnerability testing using weapons ranging from small arms to 155mm High Explosive artillery rounds detonated 10 feet from the howitzer proved the effectiveness of the vulnerability measures designed into the new HIP turret.

All test data is stored in a HIP program developed central automated data collection system with access by all evaluators and key staff members. Data currently on file supports assessment of 460 of the 600 technical requirements listed in the HIP Test and Evaluation Master Plan. Testing to date has uncovered design problems both in hardware and software early enough to give the Army confidence in corrective actions which can be proven in the formal TT and IOTE.

Question. All eight prototypes were to have been delivered by last August 1988. When was the last one actually delivered and what caused the delay?

Answer. The last prototype was delivered in December 1988. The delay reflects the overall program slippage caused by the forced restructure due to the FY 1988 RDTE budget reduction, the early problems in obtaining Ada support software, the Army's decision to add additional vulnerability reduction measures and testing delays caused by early equipment design problems. Prototype #6 incorporated numerous design changes based on early testing of the preceding prototypes. Subsequent testing has been delayed as the early prototypes were returned to the contractor to be brought up to the configuration of Prototype #6.

Question. Type Classification for Limited Production was scheduled for June 1989. What is your current estimate?

Answer. Type classification for Limited Production is currently planned in the Program Baseline document for September 1989. The Product Manager considers September a high risk and estimates a November Type Classification Action.

Question. Adanced procurement funding of $12.7 million was provided in fiscal year 1988. How much of this has been obligated and what is the schedule for the remainder?

Answer. In addition to the $12.7 million of FY 1988 advanced Procurement funding, below threshold reprogramming of $3.6 million was received. Of the $16.3 million total FY 1988 advanced procurement funding $9.9 million has been obligated for GFE cannons, gun mounts and dynamic reference units (DRU), $6.2 million is forecast for contract award in June 1989, and the remaining $.2 million is being held for a contract contingent liability estimate on the DRU contract (Small Business Incentive Clause).

Question. Given the delay in Type Classification, is it not likely that the fiscal year 1989 procurement funding will actually be obligated in fiscal year 1990?

Answer. The FY 1989 Limited Production contract award is scheduled for first quarter FY 1990 following the ASARC, however, a partial obligation will be made in June 1989 for the procurement of long lead time components to support the limited production quantities. Authority for the long lead award will be a PEO IPR.

Question. At this stage in the testing program what technical/schedule elements do you consider to be of greater risk and what is your plan for addressing them?

Answer. There are no significant technical risks anticipated. HIP is a synthesis of existing technologies. The original schedule was flawed because it failed to allow sufficient corrective action time for normal problems which should have been anticipated in the development of a new hydraulic power supply system and embedded software development program. Hydraulic system integration problems have been identified and corrective actions are underway. Some of the redesigned components will not be tested until TT/IOTE. If new problems are found, TT completion will be delayed. Implementation of Ada programming language, MIL–STD–1679 software design documentation, a contractual requirement for very low complexity levels in software modules and automated software testing caused many early delays in software development. These requirements are now paying-off with fast debugging and rapid corrective actions and verification of software trouble reports. The highest risk in attainment of the program schedule at this time is a contractual issue before the Armed Services Board of Contract Appeals which if enforced will force the contractor to complete the program absorbing all cost overruns. BMY's fiscal position may not be able to sustain the loss, forcing a significant work slow down.

Question. This program has had a history of cost growth. After reporting an increase last year, you stated that the total cost for HIP was $920 million. Now the total cost is shown as $1.6 billion. What accounts for the increase?

Answer. Earlier budget reductions stretched the completion date of the production program from FY 1994 to FY 1998. This increased the unit cost due to a lower production rate. The production schedule stretch out resulted in significantly higher inflation costs due to most of the work being performed in later years. The 1987 estimates were based predominantly on contractor design to cost submissions, whereas the 1989 estimates reflect the latest independent Government Cost Estimates based on the system as designed.

Question. Given the continued constraints on the defense budget, can the Army afford HIP?

Answer. HIP is affordable. The deficiencies in the current self-propelled howitzer fleet are a major contributor to our inability to counter Warsaw Pact fire support and our ability to provide effective fire support to our modernized maneuver forces. HIP is the only near term solution to these deficiencies. In spite of cost growths, the program remains far less expensive than the development, production and sustainment of a new weapon system with comparable capabilities.

Question. What changes, if any, are being considered to the HIP program in the Bush budget revisions?

Answer. There will be no change in the budget revision.

Question. Last year you budgeted $19.9 million for HIP research and development and stated that 1989 would be the last year for such funding. Now it appears that fiscal year 1989 R&D will actually be $24.4 million and a total of $14.4 million is budgeted for R&D in fiscal years 1990 and 1991. What accounts for the increase and what specific R&D tasks will be undertaken in fiscal years 1989, 1990, and 1991?

Answer. The HIP Full Scale Development prime contractor experienced severe cost growths. These growths were discussed in detail in a letter from the Assistant Secretary of the Army to Congress dated 21 March 1988. As a result, the contract was renegotiated in October 1988 and contract ceiling increased about $20 million. Increased funding of $4.5 million in FY 1989 was necessary to pay for a portion of the contract cost growth. FY 1990 and FY 1991 funding of $14.4 million is planned to be used as follows: (1) FY 1990 ($10.7 million)—Complete software development of HIP automatic fire control baseline, frozen during early full scale development, to ensure compliance with updates to the advanced field artillery tactical data system and battery computer system modifications and resolution of full scale development firing table correction from U.S. Army Ballistic Research Laboratory. (2) Engineering/fabrication of protective side skirts and ballistic covers to correct vulnerabilities in sponson region and recoil system. (3) Live Fire testing of corrective actions to correct deficiencies identified during the completed ballistic hull and turret tests. (4) Preparation for and settlement of advanced armament system termination. (5) FY 1991 ($3.7 million)—Upgrade Integrated Logistics Support documentation to reflect corrective actions. (6) Milestone IIIA, Type Classification—Standard. (7) Generally, planned accomplishments are required to progress from type classification-Limited Production in FY 1989 to Type Classification-Standard in FY 1991; except for software completion and advance armament system termination which were deferred because of current and prior year funding constraints.

Question. Last year you told us that HIP would be procured under a competitive solicitation beginning in fiscal year 1991. What is your current plan and why has it changed?

Answer. A Limited Production contract for FY 1989 and FY 1990 with an option for FY 1991 is currently planned. If the competitive Technical Data Package (TDP) is validated in sufficient time to compete the FY 1991 procurement the Army will do so. That however is unlikely. The current projection is to validate the TDP against the Initial Production Test (IPT) vehicles in 1991 and use that TDP to compete the 1992 and following procurements. The delay in competition is a reflection of the overall program delays and the severely reduced procurement quantities in the first two years of production.

[CLERK'S NOTE.—End of questions submitted for the record.]

Mr. MURTHA. Thank you, General Chen.

The committee is adjourned until 12:00 tomorrow where we will meet in room H-405.

TUESDAY, MAY 16, 1989.

PROCUREMENT OF AMMUNITION, ARMY

WITNESSES

MAJOR GENERAL PAUL L. GREENBERG, DEPUTY CHIEF OF STAFF FOR AMMUNITION, ARMY MATERIEL COMMAND

ALBERT J. CALABRESE, PROGRAM EXECUTIVE OFFICER FOR ARMAMENTS

MICHAEL FISETTE, ASSISTANT DEPUTY CHIEF OF STAFF FOR AMMUNITION

INTRODUCTION

Mr. MURTHA. The committee will come to order.

This afternoon the Committee considers the Procurement of Ammunition, Army appropriation. The appropriation funds a large variety of end items, including small arms, mortar ammunition, artillery ammunition, tank ammunition, fuzes, propelling charges, mines and grenades. It also funds the modernization and expansion of ammunition production facilities and the establishment of such facilities for new ammunition end-items.

The fiscal year 1990 budget for Procurement of Ammunition, Army is $1,735,700,000 compared to $2,013,000,000 available in the current year. The fiscal year 1991 budget is the lowest since before 1981 and the "decade of neglect". The fiscal year 1991 is further reduced to a total of $1,542,300,000.

The principal witness is Major General Paul L. Greenberg, Deputy Chief of Staff for Ammunition, Army Materiel Command. General Greenberg, your prepared statement will be made part of the record.

General Greenberg, when this hearing was postponed from April 18, you submitted an amended statement for the record. Your original statement included the following sentence on the first page: "The most significant impact of our reduced ammunition TOA in FY 1990 and FY 1991 is the impact on workload at our Army ammunition plants." You then described a reduction of 6,000 man-years at government-owned ammunition plants. You mentioned some specific plant closures.

Is this reduction less significant than you thought before?

General GREENBERG. No, sir.

There is an impact. We revised the testimony to indicate that we are working around that problem or attempting to work around that problem and live with it.

Mr. MURTHA. So it is just as important as it was?

General GREENBERG. Yes, sir.

Mr. MURTHA. If you will summarize your statement, General, we will put it in the record and we will go right to questions.

SUMMARY STATEMENT OF GENERAL GREENBERG

General **GREENBERG**. Yes, sir.

Mr. Chairman, I am pleased to provide the procurement of ammunition, Army budget request for fiscal year 1990 and 1991.

Our request is approximately $1.7 billion in fiscal year 1990 and $1.6 billion in fiscal year 1991, and is for the procurement of ammunition and items and to support our ammunition production base.

Although lower than our fiscal year 1989 appropriation by $308.2 million in fiscal year 1990 and $439.0 million in fiscal year 1991, we feel that it is both equitable and balanced within the context of the total reduced Army budget submission.

The program was developed to meet three imperatives:

First, emphasis on near-term readiness, with high priority on training support.

Second, ammunition for emerging weapon systems and to modernize and strengthen selective war reserve inventories.

And finally, funding to support and modernize our critical government-owned active ammunition production base.

To continue supporting the soldier in the field, reduced budgets mandate more than ever that we, as prudent stewards of public funds, fine tune our emphasis on economies, efficiencies, and production base consolidation, while insisting on the highest-quality, most effective ammunition.

To that end, we have eliminated marginally effective systems from our request in favor of more capable follow-on rounds, added key warfighters to the inventory, and will buy back only those service rounds used for training that add a significant warfighting contribution to sustainability. Finally, reductions in the size of both our government owned and commercial active production base will be necessary.

To strive for the best balance, within available funds, our request includes $1.5 billion for fiscal year 1990 and $1.4 billion in 1991 for procurement of ammunition end items to properly support worldwide training, and to continue to build inventories of selected war reserve items.

Training is supported by service ammunition; that is, the same ammunition used for war reserves, and "training unique" ammunition such as blanks, simulators and subcaliber rounds. The budget request contains approximately $456 million for ammunition consumed in training. The remainder is drawn from war reserve stocks. Drawdown of war reserve includes either the older rounds no longer preferred for combat use or those that are near acquisition objectives. In this manner, stocks are rotated to maintain a modern stockpile.

Requested funding for war reserve ammunition is primarily for modernization of war reserve inventories. A substantial portion of the request is for the procurement of newly developed tank ammunition, improved artillery rounds, modern mine systems, electronic fuze technology, and small caliber ammunition.

Modern tank ammunition, developed under the armor enhancement initiative, is a key ingredient to our anti-armor strategy.

The M864 Baseburner artillery round provides 60 percent extended range over its predecessor.

The Volcano mine system is a new generation addition to our family of scatterable mines, and will become the centerpiece of the Army mine program.

With the introduction of the M762 electronic time fuze, we will have moved further in our fuze modernization program and brought state-of-the-art electronic technology to these critical components.

Small caliber ammunition procurement supports the infantryman's basic weapons, the M16 rifle and squad automatic weapon system. This category also includes 25 millimeter Bushmaster for the mechanized infantryman, 30 millimeter ammunition for Apache, and 20 millimeter ammunition for the Vulcan air defense system.

Ammunition sustainability is a continuing concern as we assess the improved capabilities of our potential adversaries. To that end, we strive to invest our ammunition end item dollars for the greatest return in capabilities on the battlefield.

Turning now to the production base, we have requested $174 million in fiscal year 1990 and $220 million in fiscal year 1991 for this program.

Specifically, these funds will provide for:

Peacetime production needs and maintenance of the active base;

New facilities, and modernization and expansion of existing facilities;

Initial layaway of active facilities no longer required for peacetime production.

Key initiatives in this program include completion of a three-year design effort and initial construction of a new high melt explosive HMX facility, support for 105/120 millimeter tank Armor Enhancement Initiative facilities, correction of environmental deficiencies at our ammunition plants in fiscal year 1990, and limited safety improvement projects in fiscal year 1990 and 1991.

Since we cannot now nor for the foreseeable future afford to stockpile all the ammunition we would need to fight a sustained war, the production base remains the backbone of our ammunition sustainability planning. Our ability to surge production of active facilities and reactive inactive facilities will determine our ability to sustain our combat forces. Therefore, we view our production base, both government-owned and commercial, as a valuable asset, well worth our continual investment in maintenance and modernization.

Mr. Chairman, this completes my opening statement. I have submitted a more detailed one for the record.

There are a few key individuals who are also deeply involved in the management of the ammunition account here with me today.

On my right is Mr. Al Calabrese, the PEO for Armaments.

On my left is Mike Fisette, my deputy.

We are prepared to answer your questions, Mr. Chairman.

[The statement of General Greenberg follows:]

STATEMENT OF MAJOR GENERAL PAUL L. GREENBERG

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

IT IS A PLEASURE TO APPEAR BEFORE THIS SUBCOMMITTEE TODAY TO DISCUSS THE ARMY'S AMMUNITION PROGRAM.

THE FISCAL YEAR 1990/1991 BUDGET REQUEST CONTAINS $1,704.8 MILLION AND $1,574.0 MILLION RESPECTIVELY FOR PROCUREMENT OF AMMUNITION END ITEMS AND SUPPORT OF THE AMMUNITION PRODUCTION BASE. THIS REQUEST IS $308.2 MILLION LESS IN FY 1990 AND $439.0 MILLION LESS IN FY 1991 THAN OUR FY 1989 APPROPRIATION. COMPARISON OF THE FY 1990/1991 REQUEST WITH PRIOR YEAR APPROPRIATED PROGRAMS IS AS FOLLOWS:

(Dollars in Millions)

FY 1987	FY 1988	FY 1989	FY 1990	FY 1991
$2,087.2	$2,273.6	$2.013.0	$1,704.8	$1,574.0

ALTHOUGH LOWER THAN OUR FY 1989 APPROPRIATION, THE FY 1990 AND FY 1991 REQUEST IS BOTH EQUITABLE AND BALANCED WITHIN THE CONTEXT OF THE TOTAL REDUCED ARMY BUDGET SUBMISSION.

TO CONTINUE SUPPORT FOR THE SOLDIER, THE REDUCED BUDGETS MANDATE MORE THAN EVER THAT WE, AS PRUDENT STEWARDS OF PUBLIC FUNDS, FINE TUNE OUR EMPHASIS ON ECONOMICS, EFFICIENCIES, AND PRODUCTION BASE CONSOLIDATION, WHILE INSISTING ON THE HIGHEST QUALITY OF AMMUNITION. TO THAT END WE HAVE ELIMINATED MARGINALLY EFFECTIVE SYSTEMS FROM OUR REQUEST IN FAVOR OF MORE CAPABLE FOLLOW-ON ROUNDS, ADDED KEY WARFIGHTERS TO THE INVENTORY, AND WILL SELECTIVELY REPLENISH WAR RESERVES USED FOR TRAINING BASED ON SIGNIFICANT WAR FIGHTING CONTRIBUTION TO SUSTAINABILITY. FINALLY, CONSOLIDATION OF BOTH OUR GOVERNMENT OWNED AND COMMERCIAL PRODUCTION BASE WILL BE NECESSARY. FOR EXAMPLE, MISSISSIPPI AAP WILL SHUT DOWN AS AN ACTIVE PRODUCER BEGINNING IN FY 1990 AND ONE METAL PARTS PRODUCTION FACILITY AND ONE LOAD, ASSEMBLE, AND PACK FACILITY WILL BE LAID AWAY IN FY 1991.

BEFORE DISCUSSING THIS BUDGET SUBMISSION FURTHER, I WOULD LIKE TO BRIEFLY DESCRIBE HOW THE ARMY DETERMINES ITS AMMUNITION BUDGET REQUEST.

THE ARMY NEEDS AMMUNITION FOR BOTH WAR RESERVES AND TRAINING. WAR RESERVE REQUIREMENTS ARE BASED ON COMPUTER SIMULATIONS OF AMMUNITION CONSUMPTION BY APPROPRIATE FORCES DURING DIFFERENT CONTINGENCY SCENARIOS. PRECISE QUANTITIES OF AMMUNITION NEEDED FOR TRAINING ARE DETERMINED FROM CAREFULLY STRUCTURED TRAINING STRATEGIES REQUIRED TO ATTAIN AND MAINTAIN READINESS. THE TOTAL BUDGET IS THEN BUILT USING THE PROJECTED COST OF THAT AMMUNITION REQUIRED FOR BOTH WAR RESERVE CONTINGENCIES AND THAT AMMUNITION REQUIRED TO SUPPORT HIGH PRIORITY TRAINING FOR OUR SOLDIERS.

THE ARMY CONTINUES TO EMPHASIZE NEAR TERM READINESS THROUGH TRAINING SUPPORT AND THE BUILD UP OF WAR RESERVE INVENTORIES TO SUPPORT CONTINGENCIES. SUSTAINABILITY EFFORTS INCLUDE THE INTRODUCTION OF NEW TECHNOLOGY TO MODERNIZE THE AMMUNITION STOCKPILE, AND MAINTENANCE OF AN ACTIVE BASE UNTIL MOBILIZATION ACTIONS ENERGIZE AND EXPAND IT TO PROVIDE THE NECESSARY SUSTAINED SUPPORT. A BREAKOUT OF THE FY 1990/1991 BUDGET REQUEST FOR AMMUNITION END ITEMS AND PRODUCTION BASE SUPPORT IS AS FOLLOWS:

(Dollars in Millions)

	FY 1990	FY 1991
AMMUNITION END ITEMS	$1,530.5	$1,354.3
PRODUCTION BASE SUPPORT	$174.3	$219.7

AMMUNITION END ITEMS:

AMMUNITION END ITEMS PROVIDE FOR (1) PROCUREMENT OF MODERN AMMUNITION, (2) BUILDUP OF WAR RESERVE STOCKS TOWARD THE ARMY ACQUISITION OBJECTIVE, AND (3) WORLDWIDE TRAINING CONSUMPTION THROUGH THE FY 1991 FUNDED DELIVERY PERIOD. THE END ITEM REQUEST IS DIVIDED INTO THE FOLLOWING MAJOR ELEMENTS:

(Dollars in Millions)

MAJOR ELEMENT	FY 1990	FY 1991
WAR RESERVE	1,005.5	800.1
TRAINING	456.2	492.4
NON-HARDWARE	68.8	61.8
TOTAL:	1,530.5	1,354.3

FUNDING FOR WAR RESERVES ACCOUNT FOR 66 PERCENT IN FY 1990 AND 59 PERCENT IN FY 1991, WHEREAS FUNDING IN SUPPORT OF TRAINING IS 30 PERCENT IN FY 1990 AND 36 PERCENT IN FY 1991. THE NON-HARDWARE REQUEST FUNDS PROCUREMENT OF AMMUNITION COMPONENTS FOR MAINTENANCE, AND INITIAL AND REPLENISHMENT SPARES FOR NUCLEAR WEAPONS.

THE END ITEM REQUEST, BY CATEGORY, IS SHOWN BELOW:

(Dollars in Millions)

CATEGORY	FY 1990	%	FY 1991	%
SMALL ARMS	166.9	11	209.7	15
MORTARS	34.0	2	69.3	5
TANK	334.1	22	407.0	30
ARTY/CHGS/FUZES	573.9	38	361.5	27
MINES/COUNTERMINES	138.4	9	81.6	6
ROCKETS	144.3	9	95.6	7
MISCELLANEOUS	138.9	9	129.6	10
TOTAL:	1,530.5		1,354.3	

NOW LET'S ADDRESS EACH ONE OF THESE CATEGORIES SEPARATELY.

SMALL ARMS-

THE REQUEST INCLUDES $41.7 MILLION IN FY 1990 AND $56.9 MILLION IN FY 1991 FOR 5.56MM M16A2 AMMUNITION. IT ALSO INCLUDES $18.8 MILLION IN FY 1990 AND $21.6 MILLION IN FY 1991 FOR 7.62MM AMMUNITION USED IN VARIOUS MACHINE GUNS. $46.9 MILLION IS REQUESTED IN FY 1990 AND $25.5 MILLION IN FY 1991 FOR 40MM AMMUNITION, MOST OF WHICH IS FOR AMMUNITION USED IN THE MK19 GRENADE LAUNCHER. ANOTHER $23.5 MILLION IS REQUESTED IN FY 1990 AND $68.5 MILLION IN FY 1991 FOR 25MM AMMUNITION FOR THE BRADLEY FIGHTING VEHICLE.

MORTARS-

THE BUDGET REQUEST INCLUDES FUNDING FOR THE 60MM SMOKE AND 1/10 RANGE TRAINING ROUNDS, 4.2 INCH HIGH EXPLOSIVE, AND 120MM HIGH EXPLOSIVE AND SMOKE AMMUNITION. FUNDING REQUESTED FOR 120MM AMMUNITION SUPPORTS THE ARMY'S DECISION TO PROCURE THE 120MM MORTAR.

TANK-

THE REQUEST INCLUDES $186.1 MILLION IN FY 1990 AND $165.0 MILLION IN FY 1991 FOR 105MM AND 120MM TANK TRAINING AMMUNITION NEEDED TO SUPPORT ANNUAL TANK QUALIFICATION & FAMILIARIZATION FIRING FOR THE 105MM MAIN GUN CANNON MOUNTED ON TANK MODELS M1, M60 SERIES AND M48A5 TANKS, AND THE 120MM GUN SYSTEM ON THE M1A1 ABRAMS TANK. THE REMAINDER OF THE REQUEST IS FOR MODERNIZATION OF WAR RESERVE TANK MAIN GUN AMMUNITION.

ARTILLERY PROJECTILES, CHARGES AND FUZES-

THE REQUEST IS PRIMARILY FOR MODERNIZATION OF WAR RESERVE STOCKS OF 105MM AND 155MM ARTILLERY AMMUNITION. FUNDING REQUESTED FOR THE 155MM BASEBURNER PROJECTILE ACCOUNTS FOR 31 PERCENT IN FY 1990 ($178.7 MILLION) AND 25 PERCENT IN FY 1991 ($89.7 MILLION) OF THE TOTAL AMOUNT REQUESTED FOR ARTILLERY AMMUNITION. THE BASEBURNER IS AN IMPROVED CONVENTIONAL MUNITION (ICM) WITH A DUAL PURPOSE ANTI-MATERIEL/ANTI-PERSONNEL GRENADE LOAD. IT DIFFERS FROM THE BASIC ICM ROUND (M483) IN THAT A BASE BURNER ASSEMBLY BLEEDS GASES OUT THE REAR OF THE PROJECTILE TO REDUCE DRAG AND EXTEND RANGE BY 60 PERCENT OVER ITS PREDECESSOR.

THE REMAINDER OF THE REQUEST FOR ARTILLERY AMMUNITION FUNDING INCLUDES THE 105MM HIGH EXPLOSIVE ROCKET ASSISTED PROJECTILE, 155MM ARTILLERY-DELIVERED MINE PROJECTILES, AND PROPELLING CHARGES, PRIMERS AND FUZES BALANCED TO PROJECTILE QUANTITIES. THE FUNDING REQUEST FOR THE M762 ELECTRONIC TIME FUZE WILL FACILITATE OUR FUZE MODERNIZATION PROGRAM AND APPLY ADVANCE ELECTRONIC TECHNOLOGY TO THESE CRITICAL COMPONENTS. THE REQUEST ALSO INCLUDES CONTINUING FUNDING FOR NUCLEAR AND BINARY CHEMICAL ARTILLERY ROUNDS.

MINES/COUNTERMINES-

THE REQUESTED FUNDING FOR VOLCANO - A HELICOPTER AND GROUND DISPENSED MINE SYSTEM, AND THE MODULAR PACKED MINE SYSTEM (MOPMS), ACCOUNT FOR 88 PERCENT IN FY 1990 AND 81 PERCENT IN FY 1991 OF THE TOTAL REQUEST FOR MINES/COUNTERMINES. THESE ARE SCATTERABLE MINE SYSTEMS AND CONTAIN BOTH ANTI-PERSONNEL AND ANTI-TANK MINES. THE REQUEST ALSO INCLUDES VOLCANO PRACTICE MINES AND THE MINE CLEARING LINE CHARGE (MICLIC) SYSTEM - A ROCKET DEVICE DESIGNED TO BREACH PATHS THROUGH ENEMY MINEFIELDS AND OBSTACLES.

ROCKETS-

THE REQUEST INCLUDES FUNDING TO SUPPORT PROCUREMENT OF THE HYDRA 70 FAMILY OF ROCKETS - HIGH EXPLOSIVE, SMOKE, ILLUM AND PRACTICE ROUNDS, AND THE LIGHTWEIGHT MULTI-PURPOSE WEAPON SYSTEM (AT-4). THE REQUEST ALSO INCLUDES FUNDING FOR THE RANGER ANTI-ARMOR WEAPON SYSTEM, WHICH IS BEING PROCURED FOR SPECIAL OPERATIONS FORCES.

MISCELLANEOUS-

IN THIS CATEGORY ARE ALL THE REMAINING AMMUNITION HARDWARE ITEMS IN THE BUDGET REQUEST. THIS INCLUDES SIGNALS, SIMULATORS, HAND GRENADES, DEMOLITION MUNITIONS, AND "NON-HARDWARE" FUNDING AS DEFINED EARLIER.

AMMUNITION PRODUCTION BASE-

THE AMMUNITION PRODUCTION BASE PROGRAM CONTINUES PRIOR YEAR INITIATIVES AND FINANCES PROJECTS NEEDED TO MEET PEACETIME PRODUCTION REQUIREMENTS AND MAINTAIN THE ACTIVE PLANT BASE. THE FOLLOWING SUMMARIZES OUR AMMUNITION PRODUCTION BASE REQUEST:

(Dollars in Millions)

	FY 1990	FY 1991
PROVISION OF INDUSTRIAL FACILITIES	125.3	181.6
LAYAWAY OF INDUSTRIAL FACILITIES	40.0	25.5
COMPONENTS FOR PROVEOUT	7.0	12.6
JEFFERSON PROVING GROUND	2.0	-
TOTAL:	174.3	219.7

PROVISION OF INDUSTRIAL FACILITIES PROVIDES FOR THE DESIGN, ACQUISITION, AND CONSTRUCTION OF NEW FACILITIES AND REDESIGN, REHABILITATION, EXPANSION, REPLACEMENT, MODERNIZATION, AND CONVERSION OF EXISTING FACILITIES. THIS CATEGORY IS ABOUT 72 PERCENT OF THE PRODUCTION BASE SUPPORT REQUEST IN FY 1990 AND 83 PERCENT IN FY 1991. KEY INITIATIVES IN THIS PROGRAM INCLUDE COMPLETION OF A 3-YEAR DESIGN EFFORT AND INITIAL CONSTRUCTION OF AN HMX FACILITY AND CORRECTION OF SAFETY AND ENVIRONMENTAL DEFICIENCIES AT OUR AMMUNITION PLANTS.

IN FY 1990 $40.0 MILLION IS REQUESTED FOR LAYAWAY THAT IS PROTECTION AND PRESERVATION OF EQUIPMENT AND FACILITIES AT VARIOUS LOCATIONS THAT ARE NO LONGER REQUIRED FOR ACTIVE PRODUCTION, BUT WHICH MUST BE RETAINED FOR FUTURE PEACETIME OR MOBILIZATION. THE SIGNIFICANT INCREASE OVER LAST YEAR ($19.6 MILLION) IS ATTRIBUTED TO $20.8 MILLION FOR INITIAL LAYAWAY OF MISSISSIPPI AAP. THE FY 1991 REQUEST OF $25.5 MILLION PROVIDES, AMONG OTHER THINGS FOR THE LAYAWAY OF ONE 155MM BASEBURNER PROJECTILE (M864) METAL PARTS LINE AND ONE LOAD, ASSEMBLE, AND PACK LINE AT FACILITIES TO BE DETERMINED. FY 1991 CONTAINS NO ADDITIONAL FUNDS FOR LAYAWAY EFFORTS AT MISSISSIPPI.

THE COMPONENTS FOR PROVEOUT LINE PROVIDES FUNDS TO CHECK OUT COMPLETED PRODUCTION FACILITIES TO ASSURE THAT (1) THE FACILITY IS CAPABLE OF PRODUCING AN ACCEPTABLE END PRODUCT, (2) THE MANUFACTURER'S WARRANTIES ARE MET, AND (3) THE FACILITY IS CAPABLE OF PRODUCING AT THE DESIGN RATE SPECIFIED.

THE FINAL EFFORT IN THE PROGRAM IS $2.0 MILLION IN FY 1990 FOR MODERNIZATION OF JEFFERSON PROVING GROUND TEST EQUIPMENT WHICH IS REQUIRED DURING PRODUCTION ACCEPTANCE TESTING ON ARMY AMMUNITION AND COMPONENTS. JEFFERSON HAS BEEN IDENTIFIED FOR CLOSURE IN THE COMMISSION ON BASE REALIGNMENTS AND CLOSURE REPORT. IF APPROVED, THE MISSION PERFORMED BY JEFFERSON WILL BE TRANSFERRED TO YUMA PROVING GROUND. THESE FUNDS WILL BE REQUIRED AT YUMA FOR SIMILAR UPGRADES. NO FY 1991 FUNDS WERE INCLUDED FOR JEFFERSON PROVING GROUND AS FY 1990 WAS THE FINAL PHASE OF THE MODERNIZATION EFFORT.

IN CONCLUSION I WOULD LIKE TO TAKE THIS OPPORTUNITY TO THANK THIS COMMITTEE FOR YOUR PAST SUPPORT OF THE AMMUNITION PROGRAM. HOWEVER WE NEED YOUR CONTINUED SUPPORT MORE THAN EVER TO MAINTAIN AND IMPROVE OUR READINESS. THANK YOU.

AMMUNITION TRENDS

Mr. **MURTHA**. We are drawing down our war reserve and are we also drawing down our training inventory?

General **GREENBERG**. We are maintaining our training only inventory at traditionally high levels to support training 100 percent. That is the Chief's desire.

Mr. **MURTHA**. We are drawing down about half a billion dollars a year; is that right?

General **GREENBERG**. Yes, sir.

Mr. **MURTHA**. The new items of ammunition are more expensive than the old were. We have more sophisticated ammunition. The funding for ammunition is less than in 1981 when we had a real shortage of ammunition. If we are spending less its seems obvious to me that we are buying a lot less quantity.

General **GREENBERG**. Yes, sir.

Mr. **MURTHA**. When are we going to reach the point of no return? It seems when you are drawing down that fast, it is going to come very quickly.

General **GREENBERG**. We are attempting to modernize that portion of the stockpile we feel is giving us the best capability and then trying to build those levels while at the same time drawing down the older, less capable ammunition, so less than 20 percent of the ammunition that we are drawing down for training is, in fact, ammunition that is either considered to be the very modern stockpile or is not in excess of our defense guidance.

Mr. **MURTHA**. You won't have to worry about rotation if you keep drawing this down because you will be using it as fast as you get it from the factory.

It seems to me we are going to run into the problem of not having adequate training rounds.

I can remember when the National Guard didn't have enough ammunition for training. I don't remember if the regular units had the same problem, but I think even they were restricted somewhat in their training because of lack of ammunition.

At the proposed procurement rates, which items are going to get critical? I see ——— in some of these. Are you below ——— in any critical ammunition areas?

General **GREENBERG**. Yes.

There are those items that we are buying for the first time in the last couple of years.

It will take time to build up those inventories. There are substitutes in the inventory to maintain that balance until we get the newer items in sufficient quantities.

To be as specific as I can our worldwide inventory of ammunition is running at about———

Mr. **MURTHA**. Your preferred total overall goes down to ——— supply for fiscal year 1989. In 1990, it is ———. It seems to me that when you get down to ——— you are getting into a critical stage here.

General **GREENBERG**. Yes, sir.

Mr. **MURTHA**. If we don't stop this erosion now we are going to have a shortage.

General **Greenberg**. On the top portion of the chart, the anti-tank program is going up because we are putting emphasis on our anti-tank main gun ammunition.

The anti-materiel rounds are holding their own, MLRS and the M864 Baseburner round——

Mr. **Murtha**. You must buy an awful lot of anti-tank rounds then, because it seems like your chart shows you dropped —— so you are buying an awful lot of tank rounds; is that what you are saying?

[Clerk's note.—Classified chart removed.]

General **Greenberg**. Yes, sir.

Mr. **Murtha**. Which keeps your average up, but the rest of the rounds are down.

General **Greenberg**. Where I believe we will be getting into trouble before long is in the anti-personnel area, going from —— at the end of fiscal year 1991.

Mr. **Murtha**. How much money do we have to spend to fix that problem?

General **Greenberg**. I don't believe we ought to spend any more money at this point in 1990 and 1991. We are going to spend some money in the outyears to build our M107 155 millimeter projectile inventories for a new type of high-explosive round.

Mr. **Murtha**. You are saying that you can get by with the amount of money you have available; obviously you can get by if no war breaks out.

You are a long way off from two months.

General **Greenberg**. We would prefer ——.

Mr. **Murtha**. What would it cost us in order to stop the erosion, just stop it?

General **Greenberg**. We would need about $2 billion a year.

Mr. **Murtha**. Two billion dollars just to stop the erosion?

General **Greenberg**. Yes, sir. We have about $1.7 billion and would need $2 billion total.

Mr. **Murtha**. So you need $300 million more in order to stop the erosion?

General **Greenberg**. Yes, sir.

That would then give us adequate dollars to add to our stockpile.

Mr. **Murtha**. If you got $300 million, what kind of mix would you come up with?

General **Greenberg**. Artillery, increased mines for the most part.

POTENTIAL AMMUNITION INCREASES

Mr. **Murtha**. In other words, how would we add it in order to make sure we stop the erosion?

General **Greenberg**. I would like to defer that for the record and provide you with a buy-back list to do that.

[The information follows:]

Both the House and Senate have asked for itemized lists for potential additions to our budget. To be consistent with the Congress, the following items are submitted as fully executable programs in addition to those in the FY 1990 budget submission. The hardware items are in priority order sequence.

Item	$/M	QTY/K
PROJ, 155 Nuclear	4.7	
AT4	3.0	3.5
CTG, 25MM, M919	10.0	112.4
Grenades all types, L8A3	7.3	123.8
Mout fuze	18.0	250.0
CTG, 20MM, M940	10.0	581.1
CTG, 40MM, M430, HEDP	15.0	1,374.9
Nuclear WPNS SPT materiel	.6	
Grenades all types, other	2.7	Various items
Signals all types	1.2	Various items
40MM all types	7.0	Various items
CTG, 120MM, M865	15.4	22.0
Subtotal	(104.8)	
M206 Flare	.8	61.1
M74 Simulator	1.6	PIP
105MM Blank	3.6	136.7
M804 Projectile	17.0	117.3
M3 Prop Charge	4.3	81.0
Projectile, 155MM ADAM M731	20.1	4.5
Projectile, 155MM SMK, M825	40.0	109.3
7.62MM all types	10.0	34,482.8
Subtotal	(202.2)	
5.56MM all types	3.5	16,666.7
Provisioning of industrial facilities	22.9	N/A
Layaway of industrial facilities	60.0	N/A
Total	288.6	

POTENTIAL WORKFORCE REDUCTIONS

Mr. MURTHA. How many people would have to be laid off at the level you are at now?

General GREENBERG. Sir, we are going to—from the active?

Mr. MURTHA. Provide that for the record.

[The information follows:]

The FY 1990-91 ammunition budgets will require reduction of approximately 6,000 contractor man-years at the fourteen (14) Government-owned, Contractor-Operated (GOCO) ammunition plants.

AMMUNITION PLANT CLOSURES AND REDUCTIONS

Mr. MURTHA. How many plants would have to be closed as a result of your budget?

I realize these are expensive plants, but we have to look at it two ways: from the standpoint of the cost efficiency of each of the plants, but also the surge capability we would have in case we do have a national emergency.

We certainly don't have the war reserve we need and ammunition is always one of the first things that they start to run out of.

How long would it take you to bring a closed plant back up again?

[The information follows:]

If the facility (production equipment) is maintained in a high state of readiness, by definition, it would take 4 months for partial start-up and 9 months for full production. However, based on age of equipment, when last used, frequency of routine maintenance, as well as complexity of production process, the start-up time would best be stated as 5-9 months for partial start-up and 12-15 months for full production.

Mr. **Murtha**. If you needed increased production for a national emergency, would you have the same number of plants you have now?

General **Greenberg**. No, sir.

We have approximately 27 plants of which 24 are GOCO and 3 GOGO. We have only 17 of them active—14 GOCO and 3 GOGO—and the balance are in some kind of standby.

Mr. **Murtha**. So what would you do? If you got the funding level you are requesting, would you have to close plants?

Mr. **Greenberg**. It would be dependent at least in 1990 on the mix of ammunition we would buy.

For example, the Mississippi Army Ammunition Plant——

Mr. **Murtha**. Give us a mix for the record, that would prevent you from having to close any plants and then give us an idea what plants would have to be closed and how many people laid off if we go with the budget figures that you have requested.

General **Greenberg**. The 1990 and 1991 numbers; yes, sir.

[The information follows:]

The additional $300 million received in FY 1990 and the subsequent plus-up of the M864 Program from 120,000 to 240,000 projectiles will provide adequate workload for both Scranton and Kansas AAPs to remain active facilities through FY 1992 Execution Year. Subsequent increases in funding in FY 1991 and the out years for the M864 would again permit workloading both Scranton and Kansas AAPs.

Approximately $120 million annually is required to keep the Mississippi Plant open. This will provide for 240,000 155MM M483 ICM Projectiles. This does not include the propelling charges and fuzes.

Mr. **Murtha**. Mr. McDade?

Mr. **McDade**. Mr. Chairman, could I defer my questions?

Mr. **Murtha**. Yes.

FISCAL YEAR 1990 BUDGET REQUEST

Mr. Livingston?

Mr. **Livingston**. Thank you, Mr. Chairman.

Let me see if I understand.

The Army's fiscal year 1990 ammunition budget request is $1.705 billion. We are $500 million less than the fiscal year 1988 amount and nearly $2 billion less than the Army's Deputy Chief of Staff Logistics has said is the minimum funding needed to ensure readiness.

Mr. **Murtha**. We are below the 1981 level in the amount of dollars. We have much more sophisticated ammunition and so the amount would be much less than it was in 1981 that we are buying. So ammunition is down substantially.

Mr. **Livingston**. So what is the Joint Chief's requirement for wartime ammunition stocks, on hand supplies, when war breaks out?

General **Greenberg**. We have been asked to maintain ——— ammunition as a worldwide objective. We have not met that objective in all rounds. We have some rounds that we maintain at ——— such as tank ammunition.

Some of our artillery ammunition with acceptable substitutes is up above ——— but much of our new modern ammunition is below the ——— figure.

ARTILLERY AMMUNITION

Mr. LIVINGSTON. Define what the difference is between the M483 and the M864 and what your supplies are.

General GREENBERG. The M483 is an improved conventional munition. It contains something like 88 small grenades which are deployed over a target and individually explode, sending fragments in all directions.

The grenades have a shape charge capability against light armor. The M864 projectile is identical in cargo load. It has fewer grenades. However, the range is extended 60 percent. It goes beyond 29 kilometers and as a result, of course, gives us a capability to extend our range this much further into the target area.

Mr. LIVINGSTON. Is the 864 currently in production?

General GREENBERG. Yes, sir.

It is in production now and began in fiscal year 1987.

Mr. LIVINGSTON. I am advised that there is not much inventory of the 864.

General GREENBERG. No, sir.

The LRIP quantity is being produced, the first buy at Louisiana Ammunition Plant, the metal parts in Louisiana, and the load assembly pack operations currently are being done at Milan Ammunition Plant in Tennessee.

Mr. LIVINGSTON. What are your requirements for both shells?

General GREENBERG. The M864 requirement, the AAO, is currently about 5,673,000. That is for 180 days of that. ———.

Mr. LIVINGSTON. And right now we have very little, so———

General GREENBERG. Yes, sir.

So, we are relying on our current stockpile of M483's which I think is running now at about ———.

Mr. LIVINGSTON. M483 is ———?

General GREENBERG. Yes, sir.

Mr. LIVINGSTON. What is the requirement for that?

General GREENBERG. We said ———. The AAO is about 14.8 million for 180 days. ———.

Mr. LIVINGSTON. So we are—I guess these can be used as examples of other types of munitions that pretty well indicate that we are way behind in a number of areas, are we not, General?

General GREENBERG. Yes, sir.

Mr. LIVINGSTON. Is there an attempt to accommodate for that? What do we do with contingency plans in the event that we have a war?

General GREENBERG. Within the budgets that the Army was given and the priority that was placed on ammunition we attempted to concentrate on those items that we felt were giving us the greatest potential and payoff.

We are buying tank ammunition, modern tank ammunition. We are improving our missile capability and buying additional quantities of the MLRS, which has a similar grenade as the M483. Of course, it delivers many, many more of those grenades. So we are adding those to our inventory. So we are trying to compensate.

In fact, the M864 projectile, in fiscal year 1990, will be at maximum capacity, 240,000 is what we have asked for in 1990.

Mr. Livingston. So as you cut back in the budget substantially, presumably you are going to have to close plants.

General Greenberg. Yes, sir.

Mr. Livingston. Then what do you do if you have a heatup?

General Greenberg. We have approximately 60 percent of our bases currently in layaway, in stand-by status. They are being maintained.

There is a cadre of personnel at each plant. They go through the maintenance operation. They go through their reactivation drills so if necessary we can bring them back.

Mr. Livingston. I have a number of questions I want to submit for the record.

[Clerk's note.—Questions submitted for the record and the answers thereto follow:]

Ammunition Stockpile

Question. Provide for the record the war reserve ammunition stockpile levels, in number of days, currently on hand (and how these levels compare to JCS requirements) for the M483 and the other programs the Army is completing or declining.

Answer. Days of supply and the percentage of requirement we achieve at the end of the fiscal year 1989 funded delivery period, for items listed on the attachment, are shown below. The requirement we are measuring against is our procurement objective in accordance with defense guidance, or 60 days of supply.

Question. According to the Army Deputy Chief of Staff, the war reserve stockpile of preferred munitions is currently only 65% of needed levels. Is that accurate?

Answer. Yes. In aggregate terms, our days of supply for preferred munitions at the end of the fiscal year 1989 funded delivery period total ——— in accordance with defense guidance.

Question. How do these levels of preferred munitions compare to JCS requirements?

Answer. Our inventory levels of preferred munitions total ———.

Question. Provide for the record what the war reserve stockpile percentages are for preferred munitions compared to the needed level for the 483 and other ammunition listed on the attachment provided.

Answer. This question was answered in our response to question number one, same subject.

Question. According to the GAO, the Army has less than half of the M483A1 inventory it is authorized to procure. Is this true?

Answer. Yes. The authorized acquisition objective for the M483 is 14.8 million rounds, compared to an asset posture of 4.9 million rounds at the end of the fiscal year 1989 funded delivery period. However, we have ——— of our procurement objective in accordance with defense guidance, which is ———.

Question. Provide details for the record on the levels the Army needs and how much has been procured through FY 1989.

Answer. Our asset posture for the M483 will be 4.9 million rounds at the end of the fiscal year 1989 funded delivery period, compared to our procurement objective in accordance with defense guidance of ———.

Question. The 864 is a much needed round and offers some range advantages over the 483. Please explain.

Answer. The 155mm M483A1 artillery projectile has 64 M42 and 24 M46 grenades and has a maximum range of 18KM. The new M864 baseburner projectile contains 48 M42 and 24 M46 grenades and has a maximum range of 29KM, a 60% range increase over the M483.

Question. At the shorter ranges that both the 483 and the 864 can reach, I understand the 483 is more lethal and in some cases superior to the 864. Is this true? Please explain for the record.

Answer. The M864 Baseburner DPICM (Dual Purpose Improved Conventional Munition) has 60% greater range than the M483A1 (DPICM). The M483A1 has 64 each M42 grenades and 24 each M46 grenades. The M864 has 48 each M42 grenades and 24 each M46 grenades. As a result there is a reduction in net effectiveness on target. The M864 is used at the higher zones of the propelling charges which combined with the basebleed feature provides the greater range. Lower zone can be accommodated with the M483A1.

MISSISSIPPI ARMY AMMUNITION PLANT

Question. What are the Army's latest costs and schedules for placing the Mississippi Army Ammunition Plant (MSAAP) in a standby status? Provide details for the record.

Answer. The estimate to physically layaway Mississippi range from $25-$35 million. There are additional costs associated with layaway which brings the total cost to $80-$100 million. Annual recurring maintenance and management costs are estimated to $13.4 million. Projectile MPTS layaway would begin January 1990. Cargo layaway would begin May 1990. LAP layaway would begin 1 October 1990. Support layaway would begin 1 October 1990.

Question. What are the latest costs for deactivating with severance payments included?

Answer. Severance pay is estimated at $4.1 million and is included in the $80-$100 estimate for plant deactivation.

Question. Provide a breakdown, by fiscal year, when these costs will occur at what level. Include the amount budgeted in FY 1990 for these costs.

Answer. In FY 1990 $20.8 million is budgeted for layaway. An additional $60-$80 million is required to effect complete shutdown and layaway.

Question. Current plans by the Army to put MSAAP in standby status actually means MSAAP will be placed in a high state of standby readiness. I understand current estimates show that this would cost approximately $13 million annually. Is this accurate? Provide details and clarification for the record.

Answer. The $13 million is an estimate based upon specific level of layaway.

	Millions
NASA Charge	$1.2
Personnel Costs	9.0
Material, Utilities	2.7

	Millions
Fees	.5
	$13.4

Question. I understand MSAAP is the only fully automated and most modern government operated ammunition plant. The sophisticated production computers and automated equipment are essentially "use it or lose it" assets. In other words, if this equipment is simply stored and not used, the state of the art electronics and automated production equipment deteriorates and obsolescence occurs rapidly. Is this accurate? Please explain.

Answer. Obsolescence will occur because of rapid advances in the fields of computers and automated equipment. The equipment will still remain usable but after a period of time manufacturers will cease to provide technical support (spare parts). This would occur even if the equipment remains in operation. Deterioration may occur during storage but steps will be taken to keep this to a minimum by dehumidification and other means. Consideration is being given to the purchase of spare parts to support this equipment.

Question. How can the MSAAP remain in a high state of readiness (DOD defines this as being ready for partial start up in 4 months, and full production in 9 months) if this equipment is removed to prevent deterioration and obsolescence?

Answer. In order to maintain a high state of readiness, very little of the electronic equipment will be removed from the facility. Personal computers are the only items for which consideration is being given to relocation.

Question. What are the Army's estimates for removing and relocating, for other uses, the production computers and other automated equipment?

Answer. It is planned that the Production Computers will remain in place in order to maintain readiness state required. Consequently, no estimates have been generated for relocating them.

Question. Are these costs included in the current total estimated costs for putting MSAAP in standby status?

Answer. No costs for this work have been included in the total cost estimate because the work is not in the layaway plan.

Question. How many months will MSAAP actually remain in a high state of readiness if the equipment remains in standby (as proposed) with the subsequent deterioration and obsolescence?

Answer. This is currently being explored with the manufacturers of the equipment. The rate of deterioration and obsolescence is very hard to predict but it is expected that the high state of readiness will be maintained for a period of years rather than months.

Question. I understand the contractually required milestones for the Completion of Mobilization Project and Plant equipment acceptance test completion cannot be accomplished without some production funding in FY 1990. Is this accurate? If not, why not? Provide details.

Answer. It is partially correct. Complete proveout cannot be accomplished without an FY 1990 buy. The schedule for proveout of MSAAP was based upon the plant producing 20,000 per month through September 1990. The proveout will be 80 percent completed in January 1990. The remaining equipment requiring proveout deals primarily with the manufacture of the projectile metal parts, which completes production in December 1989.

Question. Isn't it true that MSAAP cannot become a part of the Defense Department or Army's ammunition production base until the Mobilization Project contract and proveout of facilities is complete?

Answer. No. As an active or inactive producer of the M483, MSAAP is owned by the Army and is part of the Army's mobilization production base. The proveout is to determine if MSAAP can operate at their design rate of 120,000 M483s per month; not to determine if MSAAP can be accepted into the production base, which it already is.

Question. What are contract schedule dates for completing the Mobilization Project and final acceptance of all systems by the Army?

Answer. September 30, 1990.

Question. Aren't they late 1990 and into 1991, after the proposed date to close MSAAP?

Answer. Yes. The proveout cannot be completed since production on the projectile metal parts will be completed in December 1989 and the cargo metal parts will be completed in April 1990.

Question. In order to establish MSAAP as part of the mobilization base, what levels of 483 production in FY 1990, and at what cost, would be necessary at MSAAP?

Answer. MSAAP was built to manufacture M483 Projectile. At full capacity, it represents 40% of the M483 mobilization base. Approximately 180,000 rounds would be required for FY 1990 to complete the prove out of the plant. Total cost would be approximately $90 million. This does not include the cost for propelling charges and fuzes.

Question. What levels of production, and at what cost, would be necessary in FY 1990 to sustain production at MSAAP at a minimum sustaining rate and at an economic rate?

Answer. If FY 1990 funding for the M483 were provided, production could not be sustained at MSAAP due to the lead times required to secure raw materials and components. Operations in the metal parts area and cargo area would experience interruptions and layoffs. The required quantities of M483 required to maintain a MSR is 240,000 annually. The economic rate (1–8–5) is 504,000 annually.

Delivered	Total funding F/MRS	Total funding F/1–8–5
M483 Projectile	121,375,200	254,887,920
M762 Fuze	28,614,600	60,067,950
Propelling Chgs	15,144,740	39,830,440
Total	$165,134,540	$354,786,310

Question. What would be the monthly minimum sustaining rates of 483 production (and the annual costs in FY 1990 for such rates) at MSAAP, Louisiana Army Ammunition Plant (LAAP), Riverbank, California, the Norris Vernon facility in California?

Answer. The monthly minimum sustaining rates (MSR) of the M483 and corresponding costs are as follows:

	MSR monthly rate	Annual funding
Mississippi AAP:		
Full-Up Projectile	20,000	$121,375,200
Louisiana AAP:		
Projectile Metal Parts	14,200	2,656,962
Riverbank AAP:		
M42/M46 Grenade Metal Parts	840,000	10,483,200

Since Norris Vernon, is a commercial contractor, the MSR is unknown to the Government, however, it is felt that 7,500/mo is the approximate MSR. The FY 1990 annual cost for Norris projectiles would be dependent on the Norris Vernon bid, predicated on their current workload. The last contract Norris Vernon, was successful on was for a quantity of 105,221 at an FY 1987 unit cost of $189.21. It should be noted that in making these comparisons the base lines are not equal. We are comparing costs of plants providing separate components (projectiles, cargo metal parts and LAP) with MSAAP which is an integrated facility manufacturing all three components.

Question. Provide the same figures and cost breakdowns for the economic rate of production at each of these 4 facilities.

Answer. The monthly 1-8-5 rates of the M483 and corresponding costs are as follows:

	Monthly rate 1-8-5	Annual funding
Mississippi AAP:		
Full-Up Projectile	42,000	$254,887,920
Louisiana AAP:		
Projectile Metal Parts	20,000	3,742,200
Riverbank AAP:		
M42/M46 Grenade Metal Parts	1,050,000	13,104,000

Since Norris Vernon, is a commercial contractor, the 1-8-5 rate is unknown to the Government, however, it is felt that 12,500/mo is the 1-8-5 rate. The FY 1990 annual cost for Norris projectiles would be dependent on the Norris Vernon bid, predicated on their current workload. The last contract Norris Vernon, was successful on was for a quantity of 105,221 at an FY 1987 unit cost of $189.21.

Question. What are the actual costs per production unit at MSAAP and other plants producing (or that have produced) the M483?

Answer. The following costs were taken from the FY88 Program of which Milan Army Ammunition Plant (AAP), Kansas AAP, and Mississippi AAP had a production quantity. The Mississippi AAP costs are firm fixed prices with the exception of the common Government furnished material (GFM).

	Mississippi	Milan	Kansas
LAP	86.31	38.52	56.81
Proj MPTS	[1] 213.31	[2] 179.92	[2] 179.92
Grenades	[1] 118.16	[2] 82.44	[2] 82.44
Common GFM	73.61	73.16	73.16
Total	491.39	374.04	392.33

[1] These also reflect more recent cost of aluminum and steel. Milan and Kansas costs do not reflect this increase. This of course, only accounts for a small portion of the difference.

[2] (GFM.)

Question. Provide the same breakdown comparison for the 483 without including the overhead, or operation, costs for each plant, including MSAAP. (Most plants have a separate facilities or overhead contract for security, maintenance, steam-electrical costs, etc. MSAAP has these costs included in one total contract for production of the 483).

Answer. The assumption that other plants have an overhead contract is not correct. The plants all include overhead cost for the product. If the plants have separate contracts it is for laid away position of the plant. The overhead costs are apportioned between the two contracts.

Question. What are the actual cost per production unit at Scranton and LAAP for the 864?

Answer. Scranton AAP has not been awarded a contract for M864, however the award is anticipated in July 1989. The actual cost of a Louisiana AAP produced M864 projectile metal parts is $475.41 which is representative of the learning curve on a low rate initial production quantity experienced during April 1989. Data was received from summary of cost orders, April 1989.

Question. What are the Army's cost estimates for converting MSAAP to 864 production?

Answer. The Army estimated that an investment of approximately $28 million is required to convert MSAAP from M483 production to M864 production at the designed rate of 125 thousand rounds per month.

Question. What FY 1990 funding would be necessary to maintain 20,000 rounds per month 483 production at MSAAP? Include a breakdown with and without the costs for fuzes and propellant, and a breakdown without overhead or facilities costs included.

Answer. It is estimated that $144.3 million would be required to maintain MSAAP for a year at a rate of 20,000 each M483 projectiles per month. Of this, MSAAP would receive approximately $94.8 million. The cost breakout is:

	Amount
Proj M483lA1	$121.4
Prop charge	15.1
Fuze ETM762	28.6
Total	165.1
MSAAP layaway deferred to FY91	20.8
Total cost	144.3

Without production in the plant, maintenance costs are estimated at $13 million per year.

Question. Provide the identical information and breakdown for maintaining 10,000 rounds per month production at MSAAP.

Answer. A production rate of 10,000 each M483 projectile is uneconomical at MSAAP. Unit cost of the projectile could be expected to increase by approximately 70 percent. The unit cost of the prop charge and fuze could also be expected to be slightly (approximately 10 percent) higher. This is not a viable option due to the exorbitant increase to the unit cost of the projectile, MSAAP would still be required to lay off a significant number of employees, and the quantity is inadequate to allow the completion of the proveout of the facility contract. The cost of this option $106.4 million as follows:

	Millions
Proj M483A1	$103.2
Prop charge	8.3
Fuze ET M762	15.7
Total	127.2
MSAAP layaway deferred to FY91	−20.8
Total cost	106.4

Question. What was the stated mission of the MSAAP at the time it was authorized? Furnish written documentation of that mission.

Answer. The Mississippi mission was to provide an integrated facility to produce 155mm M483A1 projectiles.

Question. If the mission has changed, when did it and what is the current mission? Furnish written documentation.

Answer. MSAAP is still required to meet the Army's mobilization needs of the M483.

Question. How many employees would be required to maintain MSAAP in standby status as currently proposed by the Army?

Answer. About 250 employees would be retained.

Question. How many employees are currently employed at MSAAP? Provide a complete total and breakdown, including a breakdown of workers who reside in Mississippi and Louisiana.

Answer. As of 1 May 89, the total plant population is 1,776. A breakdown is as follows:

	Amount
Metal Parts Area	499
Cargo Area	292
LAP Area	418
Administration	389
Facilities	178
Total	1,776
A residence breakdown is as follows:	
Mississippi	1,394
Louisiana	166

[CLERK'S NOTE.—End of questions submitted for the record.]

Mr. LIVINGSTON. Mr. Chairman, it would seem to me that we have a mobilization base problem here and it seems like we are in a lot of different areas throughout the Defense industry, but if you start cutting down on our production facilities, when you need to ramp up, you have a real problem.

Mr. MURTHA. There is no question in my mind we have a problem here with overall money. Ammunition is obviously so critical. We are going to have to make some decisions about how much money can be added to this budget, because I don't see any other way it can go if we are going to stop the erosion of the war reserve.

We are talking about $300 million to keep it where it is and then if you are cutting into it, the war reserves at $500 million a year, obviously that means another $500 million, so we are talking about big bucks here.

Mr. McDade?

NORRIS VERNON AMMUNITION PLANT

Mr. **McDade**. Thank you, Mr. Chairman.

General, welcome. Glad to see you again.

Let me go back to last year's Appropriations conference and refresh your recollection.

During the last year's Appropriations conference, the committee was requested by some Members to direct the Army to allocate a portion of the M485 illuminating projectile metal parts to the Norris Industries ammunition facility in Vernon, California.

For a variety of reasons, the direction was not included in the final conference report. What is the current situation at the Vernon facility?

General **Greenberg**. The Vernon facility is producing. I understand that they are no longer producing heavy metal projectiles. They continue to produce cartridge cases such as the MLRS, but they have, I think, reduced their strength by approximately 60 percent in the last year and a half.

Mr. **McDade**. Does the Army consider the Vernon facility to be an essential element of the ammunition mobilization industrial base?

General **Greenberg**. Yes, sir; we do.

Mr. **McDade**. What are the long-term prospects for workload at the Vernon facility?

General **Greenberg**. Sir, we don't follow the commercial world nearly as much as we follow our own government-owned base, of course.

However, because Norris has been traditionally a member of our base for so long, we are concerned.

However, we don't give them work other than through competition within the industrial base, for those items that Norris is a part. We restrict competition to some degree, but we only go sole source to Norris where we can't buy things anywhere else.

Some of the cartridge cases that we buy only Norris has been able to produce. Other than that, we allow them to compete for everything they are capable of competing and do it on a price basis.

WORKLOADING CONTRACTOR-OWNED PLANTS

Mr. **McDade**. Active GOCO facilities are normally workloaded by the Army to maintain a stable workforce. Under what, if any, circumstances does the Army have legal authority to workload contractor-owned plants?

General **Greenberg**. Sir, the Competition in Contracting Act allows us very little latitude in going sole source to commercial producers.

One of those is if that is the only producer of that particular item.

Mr. McDade. In the universe?

General Greenberg. Yes, sir; within the universe of the base.

Mr. McDade. So you are back to the cartridge?

General Greenberg. So we have very little latitude in going direct to a commercial producer.

Mr. McDade. Are there any other circumstances?

General Greenberg. There are a few exceptions under which we can go to a commercial producer, urgency—if, for example, a producer is building a cartridge or building a round, I could add on to that if I need the round right away.

So if I can demonstrate urgency, then I could go to them sole source, but predominately it is something he is already producing. That would be the original circumstances under which I believe that the urgency would apply.

Mr. McDade. You don't often workload contractor-owned ammunition plants to begin with, do you?

General Greenberg. No, sir.

Mr. McDade. Have you done it in the last five or ten years?

General Greenberg. Directly workloaded them, sir?

Mr. McDade. Yes.

General Greenberg. We have given again sole sources on occasion to contractors who were not government-owned, but again it must follow one of the restrictions.

Mr. McDade. Put a list of the plants in the last ten years in the record where you have done that.

[The information follows:]

In Army terminology, "workloading" a contractor means to set aside work specifically to maintain a desired level of activity at that facility, such as done at the Army ammunition plants. To date, the Army has not workloaded any contractor-owned facility as described above. This is not to say the Army has never made a sole source award separately justified for allowable exceptions such as urgency or unique capability.

Mr. McDade. Am I correct that the only circumstances under which you would workload the Vernon facility would be, A, if you couldn't get the round anyplace else; and B, if there were an urgency added to the fact that you have already awarded a contract and had an additional need for it?

General Greenberg. Yes, sir.

I suppose that there would be one area and that is if we felt like that plant would go belly up and it was considered urgent that that plant be maintained for mobilization reasons or for government necessity, we could then workload the plant to maintain them in an active status.

Mr. McDade. It isn't very often that workloading is an entity in isolation.

General Greenberg. That is correct.

Mr. McDade. Suppose you were going to belly up a GOCO to workload a contractor-owned facility.

General Greenberg. I don't know a circumstance where we would do that, sir, because we have too much money invested——

Mr. McDade. One is a government-owned plant and the other competes in the commercial world.

General **Greenberg**. The only thing that makes these parts unique in the commercial world is we have a large investment in government-owned equipment out there.

If I felt that there was an item that Vernon produced that I could't get anywhere else that I had to protect in order to keep that base going, then I would petition my leadership to allow me to go sole source to them.

That is a very tricky thing, though, sir, as you might expect, First, I have to know what their financial liability is and a commercial facility guards that very jealously. Often they will call to us with some very seemingly valid justification, but we can't validate that justification. So that step has not been accomplished in the period of time that I have been associated with the ammunition progam because we just could not justify it.

Mr. **McDade**. How long have you been doing that?

General **Greenberg**. I have been doing this since 1979.

Mr. **McDade**. Is that tooling—that is all portable, isn't it, most of it?

General **Greenberg**. Yes, sir, severable; you can pick it up and move it.

ADDITIONAL WORKLOAD FOR NORRIS VERNON

Mr. **McDade**. We are informed that Under Secretary Stone recently wrote the Vice President of Norris suggesting that if 60,000 more M864 Basebleed projectiles were added to the budget, they might be assigned to Vernon.

Can you think of why the Army would do such a thing when there are two current producers, GOCOs working at less than the efficient rate and one of the two might possibly be closed?

General **Greenberg**. I would like to believe that that letter was taken somewhat out of context by the Norris people. They came to the Secretary and asked if they couldn't get into the business.

The Under Secretary asked me to investigate that and I did and I told him that we didn't believe that could happen.

He wrote a letter back to them implying—at least he intended to imply that at the current projected levels of 240,000 rounds a year, there was no way that we could allow another producer into the base; and that it would require an additional quantity over and above that 240,000 in order to allow that to happen.

He then said, "Therefore, we can't help you." I think that is being interpreted as go get 60,000 more rounds and we will give you the work.

I don't think that that was what he intended.

Mr. **McDade**. I don't expect you to speak for the Under Secretary, but there is a paragraph in the letter, the concluding paragraph, which reads, "The irony of the current position within the Army is that the Army unquestionably needs a larger inventory of M864 rounds. The position with regard to that matter is absolutely clear. If we had more funds for the M864 round, we would have an entirely justifiable use for the funds, and we would have much more flexibility in hand to deal with the workloading problem at all plants."

General GREENBERG. I think again, sir, and I appreciate you not making me speak for the Under Secretary, but in my discussions with him, I think what he was trying to get across was that with current budgets, we have little or no flexibility to help anybody in the commercial world, even our own GOCOs that additional dollars would be required to give us any kind of flexibility at all.

I don't know that is an implication or a promise to support Norris Vernon. They have said for a number of years that they are about to close their doors.

This is an event we would not like to see. They do produce fine cartridge cases.

Mr. McDADE. We have, in response to whatever that paragraph meant, a talking paper being used by Norris, which says, "Under Secretary Stone has written to Chairman Murtha and most recently to NI to confirm extensive Army efforts to find suitable programs to maintain this vital asset. He identified the Army's desire to increase the M864 155 millimeter baseburn projectile program by a minimum of 60,000 rounds in fiscal year 1990. This additional requirement should be allocated to the Norris facility to provide critically needed workload."

This is, unfortunately, the way Mr. Stone's letter is being interpreted by the Norris people, not exactly consistent with what our conversation is today.

General GREENBERG. Yes, sir.

Mr. McDADE. I guess sometimes skillful lobbyists are paid to do interpretation to their own advantage, but you would disagree with that paragraph?

General GREENBERG. Yes, sir.

I would disagree with the paragraph in that we have sat down with Norris Industries and we have attempted to show them things which they could do to help themselves and areas where we think they could be competitive, but to say we are working hard to get them——

Mr. McDADE. Sixty thousand more rounds and they will be in business is not the case.

General GREENBERG. That is not true.

ARTILLERY TIME FUZE

Mr. McDADE. Let's chat about artillery time fuzes.

The budget includes $54.9 million for two electronic time fuzes for artillery projectiles. Initial procurement funding of $23.162 million was appropriated in fiscal year 1989 along with $5.644 million for the last procurement of mechanical time fuzes. The ET fuzes are said to be more accurate, faster and easier to set, and eventually less expensive than the MT fuzes. The Committee has requested the GAO to review the test results of the ET fuze and to conduct a cost-benefit analysis of the ET fuze versus the MT fuze.

What are your plans for awarding production contracts for the ET fuze, General?

ET FUZE PROCUREMENT STRATEGY

General GREENBERG. Sir, we plan to award a sole source fiscal year 1989 contract to Motorola for about 50,000 fuzes.

At the same time, we plan to award a competitive award of approximately 50,000 to 60,000 to each of two competitive producers. The purpose of that is to drive the cost of that fuze down as quickly as we possibly can, and to generate as much interest in the production of that fuze as we can. We are currently in negotiations with Motorola. They are the research and development contractor. We have gone on the street to procure two alternate contractors. We got 11 bids, so we have a great volume of the base interested in the fuze.

We have included a preproduction portion in the competitive solicitation which allows each contractor an opportunity to work with the item, to ensure that they can produce it before they begin. This preproduction clause will give us the maximum chance for success and, of course, bring the cost down.

ET FUZE DELIVERIES/TESTING

Mr. **McDade**. Can you tell me what the delivery schedule is for the first 50,000 ET fuzes?

Mr. **Calabrese**. The initial first article test units should be delivered approximatley 12 months after award, and that quantity of 50,000, the sole source to Motorola, should then be completed within 23 months after contract award.

Mr. **McDade**. So within 23 months after delivery schedule, you expect to receive 50,000 ET fuzes; is that an accurate statement?

Mr. **Calabrese**. Yes.

Mr. **McDade**. I am assuming additional testing will be down on the first production ET fuzes to validate correction of technical deficiencies in earlier tests.

When will these tests take place and how many fuzes are involved?

General **Greenberg**. We are going to test 748 fuzes in this particular series of tests approximately 13 months after date of award of the contract.

Mr. **McDade**. When will that be? What is the date on that?

General **Greenberg**. We are going to award next month.

Mr. **McDade**. So you will be awarding next month and 13 months post next month will be the first article?

General **Greenberg**. Yes, sir.

In addition to that, we are going to require first-article testing of approximately 245 fuzes from the sole source contractor and 255 fuzes from each of the competitive contractors.

So, in other words, we will have tested over a thousand fuzes before we get going real good.

Mr. **McDade**. Are these 245 from the sole source 13 months out? Is that what I understood?

General **Greenberg**. Sir, they will be probably before because they are going to come off with an initial production run and that will be the first article which allows them to proceed.

Within 11 or 12 months, I would say.

Mr. **McDade**. Have you got a test plan approved for both of the tests?

General **Greenberg**. Yes, we do.

Mr. **McDade**. When will the fiscal year 1989 follow-on contract be awarded for the ET fuze and over what period of time are deliveries scheduled to take place?

General **Greenberg**. We plan on follow-on contracts in 1991 with three-year multi-year contracts.

Mr. **McDade**. I am talking about fiscal year 1989 follow-on contracts, the competitive.

Mr. **Calabrese**. The competitive contract should be awarded in August of this year.

Mr. **McDade**. By September.

Will you tell us, please—you have 11, did you say, General?

General **Greenberg**. Yes.

Mr. **McDade**. Who are the 11?

General **Greenberg**. I don't know at this point we are treating this as competition sensitive——

Mr. **McDade**. Not a matter of public record?

General **Greenberg**. Yes, sir; it is not.

Mr. **McDade**. When will it become——

Mr. **Calabrese**. On the competitive side, it would be just prior to award, so you are talking in the August-September time frame.

Mr. **McDade**. Will you notify the committee when it becomes a matter of public record?

Mr. **Calabrese**. Yes. The committee will be notified after these actions are completed.

ET VERSUS MT FUZE COSTS

Mr. **McDade**. The budgeted cost for the MT fuze is $57 in fiscal year 1988 and $75 for a smaller quantity in fiscal year 1989.

According to the General Accounting Office, the Army performed a comparative cost analysis in January which estimated unit costs of $82 for the M762 ET fuze and $88 for the M767 ET fuze.

You now have bids submitted for both the initial and follow-on ET contracts for fiscal year 1989. How do the bids compare to these estimates?

General **Greenberg**. Sir, the information contained in the bid is procurement sensitive.

Mr. **McDade**. When will you open them?

General **Greenberg**. Competitive bids were opened right after the bid closing date April 10, 1989.

Mr. **McDade**. I thought you had a negotiated sole-source with Motorola.

General **Greenberg**. That is in process. We are in the process of negotiating what that price is going to be.

Mr. **McDade**. You haven't set a price yet?

General **Greenberg**. No, sir.

We will know that in June.

Mr. **McDade**. Tell me if this is a fair question to ask you. Are you able to tell at this point, based on the information you have, whether or not the electronic is competitive with the mechanical fuze?

Are you able to tell price-wise whether or not there is——

General **Greenberg**. Sir, we believe that the electronic is going to be competitive. The sole-source contract is going to be high.

The numbers that we are hearing bandied about in an unofficial way would lead us to believe that the first-year buy is going to be not more than what we had anticipated, but certainly more than the mechanical time fuze.

We don't know what the commercial producers are bidding. We have reason to believe that the commercial producers are coming in about where we anticipated they would, but again, with the information proprietary and competition sensitive, it is very difficult to understand this at this time.

Mr. McDADE. What is hard for us is that earlier the Army gave the committee an analysis which showed the MT fuze would be $15.7 million less expensive than the ET fuze in fiscal year 1989, and $2.7 million less expensive in fiscal year 1990.

Only thereafter would the ET fuze become less expensive than the MT fuze. That is data that you have furnished to us.

General GREENBERG. Yes, sir.

Mr. McDADE. What quantities were assumed in this analysis, by fiscal year?

General GREENBERG. We used the FYDP Army and Marine Corps buys and, of course, they vary from year to year.

I could provide those for the record.

[The information follows:]

The following combined quantities for Army and Marine Corps were used in the latest analysis:

	Fiscal years—					
	1989	1990	1991	1992	1993	1994
QTY/K	595	391	583	600	578	693

Mr. McDADE. The analysis assumes two contractors are producing. What would change if only one contractor was producing?

General GREENBERG. Obviously the cost would go up.

Mr. McDADE. And that, in fact, is what you anticipate is going to happen; isn't it?

General GREENBERG. No, sir.

What is going to happen with the electronic fuze is that the base is going to get very large——

Mr. McDADE. Later on.

General GREENBERG. It is now. We have 11 producers each wanting to become a part of that base, so we expect that is going to drive the cost down considerably.

We are going to compete each year. We are not going to——

Mr. McDADE. Are you able to say that the MT fuze would be less expensive in fiscal year 1989 and fiscal year 1990?

General GREENBERG. Yes, sir.

Mr. McDADE. So you don't begin to overtake this until downstream at some point——

General GREENBERG. We believe that the breakoff point based on our analysis is going to be in fiscal year 1991 and by 1994, we will have recouped the difference in cost in what we spent earlier based on the five-year defense plan program that we have.

Mr. McDade. You have some bids in and we are talking proprietary.

Do the bids substantiate the belief? That is proprietary information?

General Greenberg. Yes, sir.

What we would ask your indulgence on is let us get the numbers and recalculate because there have been quantity changes as well.

Once we derive those quantity changes costs in here, we will give you a new projection as, of course, will we also be able to give GAO.

[The information follows:]

The competitive solicitation is in source selection at this time. The committee will be provided the information after this procurement action has been completed.

MT FUZE PROCUREMENT STRATEGY

Mr. McDade. What is the procurement strategy and status of the fiscal year 1989 MT fuze procurement?

General Greenberg. Sir, a very interesting thing happened.

This being the final year of the mechanical time fuze buy, we wound up with a price of $38, which is unheard of. It is the lowest price that we have ever had. It makes us wonder why we have been paying in excess of $40 to $50 for a fuze these many years.

Mr. McDade. You said the budgeted cost for the MT in fiscal year 1988 was $57?

General Greenberg. Yes, sir.

Mr. McDade. And for a smaller quantity, $75 in 1989 and now you are down to $38?

General Greenberg. Yes, sir.

Of course, there is some government costs in addition to that. Those are contract costs. When you add your government costs——

Mr. McDade. You are saying it was very interesting that the cost went down to $38.

General Greenberg. Yes, sir, this being the last year. As a matter of fact, we are going to double our quantity in fiscal year 1989 at no additional cost, which will allow us enough quantity to stretch the production over the first couple of production years of the electronic fuze, thus protecting our base.

As you recall in the last couple of years, the subcommittee has added language ensuring that we protect that base.

Mr. McDade. Right.

General Greenberg. We are able to do that at no additional cost because of the price being so low.

Mr. McDade. Given the 1989 MT fuze contract and other known or anticipated sales, when will production conclude for all the MT fuze contractors?

General Greenberg. Sir, we are down to one, that being Bulova.

We understand that also Hamilton—Bulova is considering buying Hamilton. So that producer will be completed upon completion of the fiscal year 1989 contract.

We hope that will not happen until 1991, because that will then give us that safety net of a mechanical time fuze.

Mr. McDade. You will have a producer in there?

General Greenberg. Yes, sir.

Mr. McDADE. When in 1991?

General GREENBERG. I think it is March of 1991.

Mr. McDADE. By that time, you will have transitioned——

General GREENBERG. To the electronic base.

Mr. McDADE. I have other questions which I would like to submit for the record on behalf of Congressman Robert Walker.

[CLERK'S NOTE.—Questions submitted by Mr. McDade for Mr. Walker and the answers thereto follow:]

M577 MECHANICAL TIME FUZE

Question. The FY 1988 House Appropriations Committee Report stated the Committee's intent that the Army is expected to maintain two M577 mechanical time producers during the transition period prior to the replacement electronic fuze. Why didn't the Army respect that intent in the FY 1989 procurement of the M577 fuzes? Why did the Army make a 100% award to one contractor when at that time it had not even concluded its first solicitation of a sole source award for a limited number of M762 electronic fuzes?

Answer. The Army has complied with the language in the FY 1988 HAC report. Two contracts were awarded to both producers of M577 fuze in FY 1988. In the June 1, 1988 transmittal letter accompanying the Army's report to the Congressional Oversight Committees, the Committees were informed that, as part of the transition from the M577 fuze to the M762 fuze, only one award would be made on the M577 fuze in FY 1989. This was done so as to accommodate the introduction of competition on the M762 fuze and establish multiple sources as early as possible.

Question. Why hasn't the Army demonstrated to the Committee that the high cost of the M762 electronic fuze is justified for procurement now (as required by the report) when the fuze's remote set capability cannot be utilized until 1999?

Answer. The Army's report to the Committees stated that "based upon projected procurement buys, it is estimated that direct cost comparability will be realized after approximately three years of M762 fuze production". The remote setting feature of the M762 fuze provides one of the building blocks towards an evolving automated howitzer system to obtain a higher rate of fire and reduce crew size at the weapon. In addition, the cost of the remote feature in the fuze represents less than two percent of the unit cost.

Question. The Army is fully aware that Congress has requested the GAO to make a cost benefit analysis of the electronic fuze and report its findings before FY 1990 funds will be released for procurement. Why is the Army intentionally eliminating competition from its industrial base for production of the M577 fuze before the results of the GAO cost benefit analysis is completed?

Answer. The FY 1989 Joint Appropriations report directed the GAO, as part of its annual review of ammunition procurement, to conduct such a cost benefit analysis. The Army was not required to delay the acquisition of the electronic time fuze and, hence, it has maintained a diligent schedule to execute the FY 1989 program based upon an approved acquisition strategy.

Question. Doesn't the elimination of competition make it appear the Army is creating a self-fulfilling prophesy in that it hopes to have no other choice than to procure the extremely high cost M762 fuze in spite of all logic to the contrary?

Answer. The strategy to convert from mechanical time to electronic time fuze technology was laid out over twenty years ago and made known to industry. In the meantime, the Army has assiduously maintained the two current producers until the development of the M762 electronic time fuze was completed. These producers have supported such a plan and were fully aware that the M762 fuze would replace the M577 fuze. The award of one contract for the M577 fuze in FY 1989 is part of the transition plan and not intended as elimination of competition. As stated earlier, the competition is being established for the M762 fuze.

Question. The Army has frequently referred to a diminishing industrial manufacturing base for mechanical time fuzes and similar devices. Isn't this because of the lack of Army procurement for these types of programs? For instance, the demands during the Vietnam conflict cannot rationally be compared with the peacetime demand for equipment, etc. Doesn't the Army have an adequate precision manufacturing industrial base for gears and pinions to meet the services' needs?

Answer. The need to protect the industrial capability for precision components such as the gears and pinions was dictated by the fact that many of the munitions required such components. However, the new technologies used in the evolving munitions as replacement to the older generation munitions de-emphasize the need for these precision components. The development and fielding of the M762 is perhaps a case in point. Smart munitions rely predominantly upon emerging technologies requiring no precision components.

Question. Is the Army using the CICA law to drive its industrial suppliers out of business by forcing unrealistically low pricing? Examples may be Action Manufacturing and Sooner Corporation, now in bankruptcy.

Answer. Quite the contrary. The Army has protected its industrial base under the exceptions allowed in the CICA. The financial difficulties encountered by some of the industrial base producers did not result from any direct government actions.

Question. Is there a trend for large corporations to sell their fuze companies, such as Astra's purchase of Accudyne Corporation and the sale of KDI?

Answer. The Army does not track corporate mergers and acquisitions. The only improvement is whenever there is reason to believe that such corporate actions jeopardize fulfillment of contractual obligations to the government.

Question. Doesn't the reduction of the mechanical time fuze (M577) mobilization base add to the overall shrinking of the entire fuze base?

Answer. No, it does not. The M762 electronic time fuze will be a direct replacement to the M577 mechanical time fuze and will be supported by the fuze industrial base for mobilization.

Question. Isn't there a need to maintain a readiness, surge capability in this base against future demand for national security?

Answer. It is planned to maintain the M577 lines in layaway status to support the mobilization requirement until the M762 has the capability to support it entirely.

Question. Since the Army is "planning" to go forward with the M762 electronic time fuze, and considering its design originated many years ago, the Army will need to make certain there will be a continued supply of all of the electronic fuze components. How can the Army ensure availability of electronics components in the future when obsolescence occurs approximately every year in this field?

Answer. There is a recognition of rapid obsolescence taking place in electronics and other emerging technologies. This concern is germane not just to fuzing but also to many other defense and commercial products. As far as fuzes are concerned, it is expected that the technical data packages will be updated periodically by taking advantage of the evolving development in the applicable areas.

Question. Since the United States cannot competitively manufacture digital watches, semi-conductors and pocket calculators, how does the Army intend to maintain a U.S. production base for like components to support the fuze?

Answer. The electronic fuze base will be restricted to the United States and Canada. However, in compliance with the CICA, there will be competition within that base to ensure that a competitive price is obtained. Recent historic data has shown that fuze costs have come down while maintaining an onshore manufacturing capability.

Question. Isn't the Army's industrial electronic parts base being made up of insured obsolescence from the beginning?

Answer. The electronics technology does change quite rapidly. There is a likelihood that such changes can and will create some aspects of the munitions design absolete. However, in re-affirmation of an earlier response, it is expected that individual technical data packages will be updated by taking advantage of newer development. Such a process, in turn, should keep current the availability of the widest and latest manufacturing industrial base in the US to produce munitions instead of relying on older technologies.

Question. The Army's procurement plan for the M762 electronic fuze through 1994 totals 2,534,000 units at a cost of $236,111,000. The cost of these same quantities for the M577 mechanical fuze will approximate $101,000,000 at today's prices. How can we in the Congress, and you in the Army justify spending $135,000,000 dollars more for no increased combat effectiveness or readiness through this period, since the electronic fuze's remote-set capability cannot be utilized.

Answer. The Army has conducted cost comparative studies between the M577 MT fuze and the M762 ET fuze. The latest update dated January 1989 was submitted to the GAO to support its cost benefit analysis as directed by the FY89 Joint Appropriations language. The higher initial cost of the M762 electronic time fuze is expected to be completely offset by its lower cost beyond the third year of production. By FY 1994, the overall program costs will have been equalized between the M762 and the M577 fuzes. The Army then will have gained by a) obtaining a potentially larger industrial base, b) a fuze that is easier to set in the field without any need for external setters, c) fewer setting errors and d) faster setting time. In addition, the M762 remote setting feature provides one of the building blocks for an automated howitzer weapon system to enhance the rate of fire and contribute to the reduction of weapon crew size.

Question. In 1987 in an "Information Paper" submitted by the U.S. Army to the Congressional Committees it was stated "the ET fuzes are easier and more accurate to set by hand, have improved timing accuracy at long ranges, improved point detonating responsiveness and (most importantly) will be capable of being set by inductive automatic fuze setters." In 1989 in an "Information Paper" submitted by the U.S. Army it is stated "at this time the Army does not plan to retrofit existing artillery weapons for remote set capability". When will the Army have a fielded artillery weapon capable of exploiting the remote set feature? (Note: The Acquisition Plan for Heavy Force modernization approved by the UnderSecretary of the Army does not provide for the AFAS (Advanced Field Artillery System) to be in the hands of the troops until 1999 or 2000).

Answer. The Acquisition Plan for Heavy Force modernization approved by the Under Secretary of the Army does provide for the Advanced Field Artillery System (AFAS) to be in the hands of the troops in 1999. However, the remote set feature in the M762 fuze represents one of the building blocks required for the automated weapon system. It will enhance the rate of fire and contribute to a reduction of crew size at the weapon. The cost of this remote feature in the fuze is less than two percent of the fuze unit cost.

Question. In the Five Year Defense Plan the Army tentatively plans to procure 2.5 million M762/M767 fuzes for a total cost of $236.1 million. This averages to be $93.18 per fuze over the FYDP. In FY 1989 the cost per fuze is $161.00; and in FY 1990 $101.00 per fuze. In FY 1994, the end of the FYDP, the Army expects the M762/M767 to cost $79.86 per fuze. In the most recent contract award for the M577 the unit cost is $38.59. How does the Army rationalize paying a premium for a fuze whose unique feature cannot be used by the troops in the field until beyond 1999? Please submit the Committee the initial cost/quantity figures submitted by the sole source contractor and each of the second source bidders.

Answer. The unit cost of $38.59 is considered an anomaly and was due to the fact that a single award was made. This action is part of the phaseout strategy of the M577 fuze which was known to the producers. Although some of the above cited unit costs are somewhat misstated, the $93.18 overall unit cost is correct. The program costs were derived in early 1988. Based upon the latest cost study completed in January 1989, these costs are oversated. However, since the competitive solicitation is presently underway, actual cost data for FY 1989 and FY 1990 will be available upon which to base a more accurate projection of the FYDP program costs. The cost study also established that cost parity would be achieved with the M577 in the third year of production based on like quantities and strategy and that, thereafter, savings will accumulate in favor of the M762 fuze. Finally, the cost of remote set represents less than two percent of the fuze unit cost and is considered insignificant considering all the other benefits of this fuze in addition to providing one of the building blocks in support of the evolving automated howitzer system. The results of the sole source and competitive solicitations will be made available to the Committee upon award of contracts.

Question. In its most recent "Information Paper" the Army states it is paying the winning contractors to perform their own production engineering prior to production to verify that they understand and can build to the Government's technical data package. "This is intended to minimize the risk of subsequent claims." This statement would seem to state that the Army does not have a validated competitive reprocurement data package. Does this mean every new producer will have to be funded by the Army to do their own preproduction engineering? Will that cost be reflected in the production unit cost of the fuze or does that funding come from a different account?

Answer. The pre-production clauses are fairly standard procedures in the acquisition cycle utilized at the initial production stage of an item. It provides for fresh inputs from selected new contractors and allows for the fine tuning of the technical data package. This process will not be repeated in subsequent reprocurement actions. The cost of the preproduction engineering will be part of the cost in the unit cost of the fuze although it will be treated as a separate contractual line item.

Question. The Army states there is a firm operational requirement for the XM762/XM767 artillery fuze even though its unique feature, i.e., remote set, cannot be deployed by the troops in the field until beyond 1999. With the ammunition procurement request for FY 1990 at about $1.5 billion compared to $2.2 in FY 1988, are there any ammunition items which are not being procured due to the reduced funding levels? If so, could not the funds programmed for the XM762 be more effectively used to procure those items?

Answer. Due to the budgetary constraints, many ammunition items did not receive funding support in the FY90/91 budget submission. However, the Army considers the introduction of the M762/M767 fuze to be a most effective use of procurement funding.

Question. The Committees of Congress often request the Executive Branch of Government to certify to a claim made to the Congress. Who is the individual this Committee holds responsible for the critial monitoring of this program?

Answer. The Assistant Secretary of the Army (Research, Development and Acquisition) is responsible for the execution of this program.

Question. This Committee is concerned about the total cost to the Government and taxpayers. We can no longer afford non-essential or operationally unusable frills in military weaponry. Therefore, how can the Army in the current austere period persist with this electronic fuze whose capabilities cannot be fully utilized beyond 1999?

Answer. The Army's decision to proceed with the introduction of the M762 electronic time fuze was based upon extensive evaluation of all the factors bearing upon the acquisition of this item. The most recent cost study dated January 1989 (which was provided to the GAO for its cost benefit analysis) established that the M762 fuze would achieve cost parity with the M577 fuze in the third year of production given same quantities and procurement strategy. It was established that the higher initial costs of the M762 would be offset by its lower costs beginning in FY 1991. Additionally, the remote set feature in the fuze is an essential requirement towards the evolution of the automated howitzer weapon. The availability of such an insignificantly low cost feature built into the fuze hardware ensures the viability (as one of the building blocks) of the Advanced Field Artillery System. Specifically, the remote set provides one of the key elements to obtain a higher rate of fire and contributions to the reduction in crew size.

[CLERK'S NOTE:—End of questions submitted by Mr. McDade for Mr. Walker.]

Mr. McDADE. I have questions of my own which I would like to put in the record, please.

[CLERK'S NOTE.—Questions submitted by Mr. McDade and the answers thereto follow:]

MORTAR TRAINING ROUNDS

Question. The Army requested procurement funding for a 60mm 1/10 range training round for mortars (the M840). This is a new procurement. Please provide details regarding your acquisition strategy to include:

Is this a competitive procurement? What training round design will be used?

Answer. The 60mm Mortar 1/10 Practice Cartridge, M840, procurement strategy is under development and will be approved in August 1989. Previously a sole source fixed price procurement contract with POCAL Industries of Pennsylvania (the developer and producer of the 81mm Mortar 1/10 Practice Cartridge, M880) was planned. This was based on the assumption that all fixes to the M880 resulting from Acceptance Testing could be applied to POCAL's M840 round. This proved not to be the case. To improve chances for successful acceptance testing, the current proposal is to type classify the M840 performance specifications as "Type Classification-Generic" and release a competitive Request for Proposals (RFP) based on those specifications. The "objective round" is still a full caliber 1/10 range practice cartridge.

Question. Is dual sourcing contemplated?

Answer. Programmed quantities of the M840 do not support dual sourcing.

Question. When will a source selection be made?

Answer. Source selection is planned for May 1990.

Question. What is the contemplated inventory objective for this round, and what are the Army's associated annual procurement quantities. Are these amounts fully funded over the five year plan?

Answer. The training stockage requirement for M840 is 7,000 rounds. The annual training requirement is 11,000 rounds per year. Current planned/programmed procurement through FY 1994 is as follows:

	Fiscal year—				
	1990	1991	1992	1993	1994
QTY/K	20	20	(22)	0	0
$/M	6.4	5.0	(6.9)	0	0

The fiscal year 1992 figures represent an unfunded requirement. If not funded training must be reduced.

Question. The Five Year Plan submitted with the FY 90 budget proposed by the Reagan Administration (FYs 90–94) indicated that the Army intended to fund continued procurement of the 81mm 1/10 range training round (M–880) in fiscal years 1992, 1993, and 1994. Have these plans changed as a result of the new budget guidance given since this original budget was formulated? If so, please provide the revised quantities and funding for the M–880 over fiscal years 1990–1994.

Answer. There has been no changes in planned or programmed procurement of the 81mm Mortar 1/10 Practice Cartridge, M880.

Question. The Army is now procuring 60- and 81mm 1/10 training rounds, which offer lower costs and increased training flexibility over other training rounds. Why isn't the Army also moving forward with procurement of a 120mm 1/10 range mortar training round?

Answer. To improve affordability of the 120mm Mortar System, the Army decided to initially field only the high explosive and smoke rounds. A short range practice round may be developed in the future depending on its affordability and the success of the M880, 81mm Mortar 1/10 Practice Round.

120-MM MORTAR AMMUNITION

Question. On May 5, 1989, the Committee received the Army's current acquisition strategy for the 120–mm mortar and ammunition. The Army noted that the enhanced ammunition planned for the mortar was to be under "the system contract approach for at least two years."

As the 120-mm mortar is a new system, ammunition procurements can be expected to be fairly enduring and consistent in quantity, in order to support fielding requirements, training, and build-up of war reserve stocks. Since the enhanced ammunition will be initially procured under a systems contract approach, there will also be stability involving participants in the production base. These factors make 120-mm mortar ammunition an attractive candidate for a possible multi-year procurement strategy.

Wouldn't a multi-year procurement of 120-mm mortar ammunition, using the existing systems contractor team make sense for production following the initial production run?

Answer. Multi-year procurement of 120-mm mortar ammuntion is an option that should be considered at some time in the future. However, the declining Army budget coupled with funding requirements for higher priority programs places the Army's ability to generate the stable funding streams necessary to implement multi-year procurement of 120mm mortar ammunition in the uncertain category. Even with the necessary stable funding streams, the final decision to use multi-year procurement will be based on its impact on the Army's flexibility to workload ammunition producers in support of the ammunition mobilization production base. The ability to balance workloads among critical mobilization production base producer's is the most important managerial flexibility sacrificed when using multi-year procurement contracts.

Question. The ammunition quantities identified for the out-years do not appear sufficient to support more than one producer. In addition, facilitization by additional producers mean additional costs. Given the overall funding pressure on the ammunition accounts, it appears unlikely that the Army will be able to afford procuring quantities sufficient in size to support more than one source, or to facilitize more than one producer. Don't these factors also argue for a multi-year procurement as well.

Answer. Current FYDP ammunition quantities do not support more than one producer. However, these quantities are based on procuring 840 120mm Mortar Weapon Systems. This figure could change as early as fiscal year 1993, thus enabling quantities to support at least two producers. The possibility of competing two system contractors as early as 1993 presents potential cost saving far too great to justify early adaptation of a multi-year procurement strategy.

USE OF COST-PLUS VERSUS FIXED-PRICE AMMUNITION CONTRACTS

Question. The Committee is advised that the Army has no consistent policy regarding the use of cost-plus versus fixed-price type contracts for ammunition procurement.

We have been told of examples whereby one GOCO ammunition metal parts plant has almost exclusively used fixed-price contracts, while other facilities making the same types of rounds are using cost-plus. In some instances, there have been split procurements of a particular metal parts award where one of the contractors is bidding fixed-price while the other cost-plus.

This appears to be a classic "apples versus oranges" situation. In particular, I am mystified how the Army could consider one bid made on a fixed-price basis against another made under cost-plus guidelines.

What guidelines, if any, are there for determining the types of ammunition metal parts bids and contracts asked for by the Army.

Answer. The guidelines followed by this Command are the same as those found in Part 16 of the Federal Acquisition Regulation. "Contracts * * * may be of any type or combination of types that will promote the government's interest, * * * (FAR 16.102(b)). The objective is to negotiate a contract type and price * * * that will result in reasonable contractor risk and provide the contractor with the greatest incentive for efficient and economical performance." (FAR 16.103(b))

It is our philosophy to pursue Firm Fixed Price (FFP) contracts in those Government-Owned Contractor-Operated (GOCO) installations where it makes sense to do so. However, cost type contracts are often necessary because of: unstable production requirements; continually changing technical data; delays with government furnished material; and unpredictable maintenance and special projects.

Additionally, the contractor is often unwilling to accept the risk associated with a FFP contract.

While controlling production costs of metal parts, explosives, and/or load, assemble and pack, is certainly an Army concern and a major consideration in determining contract type, another concern is providing incentives for the operating contractor of a GOCO to effectively and efficiently manage the installation along with its ancillary responsibilities; i.e., care and maintenance of both idle and active production equipment, addressing environmental concerns, promoting a safe work environment, conserving utilities usage, and providing the Army with a quality product in accordance with our required fielding schedules. The myriad of Army concerns associated with the management of a government facility and on-site production at that facility weigh heavily in the determination of contract type.

Question. With declining ammunition budgets, the Army is being forced to consider closing active GOCO plants. A factor in judging which facilities to retain is cost-effectiveness. How can the Army make a valid comparison between facilities which have a history of bidding fixed-price (where bids would tend to be higher since the contractor is assuming risk) versus facilities which bid cost-plus?

Answer. The individual unit costs of ammunition items produced were not used as criteria during the manual and computer aided analysis of the ammunition production base. Rather, the readiness needs of the Army and its customers were the principle concern when analyzing the capabilities of each plant. If cost comparisons are conducted between producers with different contract types, the final cost to the government is the basis of comparison. Cost information of completed cost-plus orders can be compared to fixed-price type contracts of the same period of time.

Question. How does the Army determine the accuracy of the apportionment of overhead and other indirect costs when evaluating bids from a single product line in a multi-line plant operation versus a single line plant operation (where overhead cannot be allocated to other lines)?

Answer. Analysis of overhead is typically performed by the Defense Contract Audit Agency (DCAA). DCAA evaluates the proposed/projected overhead dollars to determine reasonableness, necessity for proposed expenditures, and allocation to Government work (e.g., direct labor per product line). The government accepts the contractor's established practices if they are in accord with generally accepted accounting principles and do not conflict with any standards promulgated by the Cost Accounting Standards Board.

Question. How does the Army ensure that in competition between two such plants that there is an equitable accounting of indirect costs?

Answer. Indirect costs are reviewed by the Defense Contract Audit Agency to ensure proposed costs are reasonable.

[CLERK'S NOTE.— End of questions submitted by Mr. McDade.]

Mr. WILSON. Mr. Young?

AT-4 ANTIARMOR ROCKET

Mr. YOUNG. Thank you, Mr. Chairman.

General, on the AT-4 antiarmor rocket, the budget request of $56 million this year for 66,000 AT-4 antiarmor rockets represents the final year of the procurement of this weapon for the Army. Is that correct?

General GREENBERG. Yes, sir. That is correct.

Mr. YOUNG. The AT-4 was originally produced by a Swedish manufacturer and then we established a production line in the United States; correct?

General GREENBERG. That is correct.

Mr. YOUNG. What is the status of the U.S. production facility and how many have been produced at that facility so far?

General GREENBERG. To the best of my knowledge, we have produced none at the facility.

The facility is being built on the Joliet Army Ammunition Plant by Honeywell. First production from that line is July of this year.

Mr. YOUNG. That was my understanding as well.

What makes me curious is that if we are closing down the procurement and we have a line that is just going to open up in July of this year, how long are they going to be in business?

General GREENBERG. Sir, they will have about three years worth of work, that is funded years worth of work, and that line will close down—sir, I am going to have to provide that for the record.

[The information follows:]

Yes, FY 1990 does represent the last Army buy of the AT-4 multipurpose weapon. The Honeywell Production facility at Joliet Army Ammunition Plant has been completed and initial production is scheduled for July 1989. This onshore facility will have continuous production operations through October 1992 when the FY 1990 program is completed.

AT-4 DELIVERIES

Mr. YOUNG. Will you also provide for the record the delivery schedule for all United States production through the fiscal year 1989 funded delivery period?

[The information follows:]

Honeywell recently completed the extensive renovation/rehabilitation process at Joliet, Illinois, ahead of schedule. Honeywell has indicated that they will be able to deliver their pre-production sample of 340 units one month early (June 1989 in lieu of July 1989). Low Rate Initial Production (LRIP) delivery is contractually scheduled for July 1989–October 1989 with FY 1988 and beyond quantities to commence November 1989.

The FY 1988 and FY 1989 deliveries of the AT-4 are as follows:

CY 1989, July 1; September 1; October 1; November 7; and December 6.

CY 1990, January 8; February 8; March 8; April 8; May 8; June 8; July 9; August 9; September 9; October 7; November 10; and December 10.

CY 1991, January 10; February 10; March 10; April 10; May 10; June 11; July 11; August 11; September 10; and October 10.

Mr. YOUNG. What is the contractural agreement with Honeywell for continued production within the United States?

General GREENBERG. Honeywell facilitized themselves at Joliet. In exchange, they were to receive an increased portion or an increased fee for that facility in the first three years of production. We will have paid that debt to Honeywell upon completion of the fiscal year 1990 buy. So at the end of fiscal year 1990, we will not owe Honeywell anything.

Mr. **Young**. Are the fiscal year 1990 and 1991 AT-4 quantities for all the services sufficient to procure the minimum quantity under the not-to-exceed contract options for those years?

General **Greenberg**. Sir, they are sufficient in 1990. They are not in 1991 and beyond.

We are working with Honeywell now to see what their minimum quantities would be in order to support Marine Corps and Navy buys. If that is not possible, we may have to take another look at the Army program in 1991; or alternatively, we are asking the Marine Corps and the Navy to look to moving some of their out-year buys to 1991 or 1992 so that it can be bought.

In addition to that, there are some foreign military sale buys that we understand will be coming along during that time which will support some additional buys in 1991.

Mr. **Young**. But if that doesn't happen, would you expect a cost penalty to be assessed against the Department of Defense?

General **Greenberg**. There will be a cost penalty if the Marine Corps and the Navy continue to buy in 1991 without the Army buys; yes, sir.

Mr. **Young**. Can you predict or estimate what that unit cost penalty will be?

General **Greenberg**. Yes, sir.

It is quite complicated though. I would like to provide it for the record.

[The information follows:]

The Army requested information regarding minimum procurement quantity from Honeywell for FY 1991 thru FY 1994. The response was received on 13 April 1989. The minimum procurement quantity for FY 1991 is 95,000 each. Reducing the annual quantity from the 95,000–100,000 range to the 40,000–59,999 range, results in a 37 percent increase in unit price. Reducing to the 20,000–39,999 quantity results in a 79 percent increase in unit price.

AT-4 ACQUISITION OBJECTIVE

Mr. **Young**. What is the authorized acquisition objective for the AT-4 and how many have been funded to date?

General **Greenberg**. The acquisition objective is 447,000, and at the end of fiscal year 1990 funded delivery period, we will have received about 360,000.

Mr. **Young**. The AT-4 was the replacement for the M-72 LAW which followed the Viper program. I remember at the time Viper, we were told, was the greatest thing that ever happened and then we went to the AT-4 and now we are going to be closing down the AT-4 and going to the multipurpose individual munition system, but the funding for that program has been stopped.

Where do we go from here?

General **Greenberg**. I don't know that the Army knows where they are going to go from here for a shoulder-fired weapon.

I think that we have too look at some follow-on programs, such as the AT-8.

Honeywell is expanding the AT-4 warhead, giving us a better kill mechanism.

I believe that the Army has been so unsuccessful in coming up with a system that meets all of our needs that we are now looking at the larger weapon systems such as the AAWS-M, the AAWS-H, which are the Dragon follow-on systems.

Facing the enemy that we see today, it is hard to conceive of a hand-held, shoulder-fired weapon that is going to offer that soldier a measure of effectiveness that we believe he needs.

It is not that the Army is ambivalent about it. The technology just has not given us a small system and we don't want to have another Viper.

It will meet some of our needs, but not all.

Mr. YOUNG. I am curious as to whether or not there actually is going to be a single system or a single weapon that will meet all of these needs.

General GREENBERG. Precisely.

AT-4 TRAINING CONSUMPTION

Mr. YOUNG. We are using AT-4s and M72s in training and I imagine we are drawing down the inventory. Is there any plan at all to have additional AT-4s or M72s produced to make up for the training drawdown?

General GREENBERG. Sir, I am sure you understand that we also have training rounds, companion training rounds for the AT-4.

So much of the training is going to be done through those companion training rounds.

A number of AT-4s will be consumed in training. If there is no follow-on program, I would think by 1992 we may have to buy those certainly for training.

Mr. YOUNG. If that happens, we would have to start the line up again.

What is it going to cost to lay away the AT-4 production line now?

General GREENBERG. That being a commercial facility, we haven't looked into laying it away at this point.

I am not sure that Honeywell wants us to lay it away. They have not offered it to us.

I believe that because of their follow-on programs and foreign military sales program, that they are going to have some kind of work in there for years.

Mr. YOUNG. So you are not budgeting anything to lay away the AT-4 line?

General GREENBERG. Not at the time, no.

Mr. YOUNG. Thank you, General.

Thank you, Mr. Chairman.

Mr. WILSON. General, I don't know as much of the technical stuff as my colleague did, as usual, but to get this sequence in my mind, the authorization committee is trying very hard to get you to replace the Dragon with the Milan or the Bofors Bill, aren't they?

General GREENBERG. Sir, I can't speak to that because that is not in my area of expertise.

Charlie, is that right?

I see a nodding of the head.

Mr. **Wilson**. I was at a briefing on the AAWS-M the other day and a couple of members of the authorization committee were rather exercised about the situation and, they weren't going to have the Dragon anymore. Does the Army plan to go for the Dragon II? What he hopes for is a successful AAWS-M?

General **Greenberg**. Yes, sir. That is what I understand.

Mr. **Wilson**. From the way I understood the conversation that puts you in conflict with the authorization committee or were these just a couple of guys?

General **Greenberg**. I can't address that.

That is in the missile procurement account and it is not one that I follow.

Sir, I can certainly find out and we will get you the information.

Mr. **Wilson**. That is all right. It is just a matter of curiosity.

Mr. Miller?

MAINTAINING THE AMMUNITION PRODUCTION BASE

Mr. **Miller**. Thank you, Mr. Chairman.

General, Section 733 of the fiscal year 1989 Authorization Act required the DOD to study alternatives to the current method of funding the maintenance of the ammunition production base and provide recommendations. Last December, the Committee received a letter from Assistant Secretary Sculley stating that the report would be submitted in January. It is now May. Can you give us some background as to what has taken place and why we do not have that report?

General **Greenberg**. That report was sent to the Secretary of Defense's office early this year, sir. I can only speculate that the change in Administration has caused the Secretary to defer taking action on that.

We have sent a number of inquiries. We will continue to attempt to move that item, sir, but it is now in the hands of the Secretary.

Mr. **Miller**. Could you tell us what alternatives are being considered?

General **Greenberg**. Yes, sir.

We are asking in our proposal that we be allowed to fund it out of the procurement of ammunition account, activity 2, that is the account that now provides funding for maintenance of the active base be spent to fund the inactive base as well. This gives me better control of the funds.

You all have been more generous in your consideration and concern for the industrial preparedness account and the maintenance of the inactive base. In the OMA account, that is an account which is very large. It is very diverse.

There is an awful lot of customers. There are many competing forces and the net result of all of that is that we don't get enough to maintain the base.

This would give us a direct control over that base. It would give you direct control over that base and we believe that is the best course of action.

Mr. **Miller**. Will the report address maintenance of contractor-owned facilities?

General **Greenberg**. Yes, sir. It will be a part of that.

Mr. **Miller**. Will the report provide a plan for solving this multibillion dollar problem we are talking about?

General **Greenberg**. Yes, sir; it will.

PLASTIC TRAINING AMMUNITION

Mr. **Miller**. In another area, last year the Army was directed to investigate the use of a procurement strategy for plastic training ammunition and this action was taken in the belief that the ammunition could save money and widen training opportunities. What is the status and milestones of this investigation?

General **Greenberg**. Yes, sir.

We made a lot of progress in this area, I am happy to report, Mr. Miller.

The fiscal year 1988 program, short-range training ammunition for the 5.56 round, that is the small round used with the M–16, proposals were received in January of 1988.

Unfortunately, when they were tested, we had some problems with them. We have asked for new samples in May. They will be retested between May and September and we hope to make an award by November of this year.

We awarded a contract to Bakelittfabrikken in January of 1989, or will award money in January of 1989 for the caliber 50 round.

Mr. **Miller**. How much is the budget for this ammunition in the 1990 budget?

General **Greenberg**. Sir, I am sorry, did you say 1989 or 1990?

Mr. **Miller**. 1990.

General **Greenberg**. In 1990—approximately $3 million.

Mr. **Miller**. In the past, much of the 5.56 millimeter that you were speaking of, but also the 7.62 millimeter ammunition has been workloaded to the Lake City Army Ammunition Plant. What is your procurement strategy for plastic training ammunition and why should it not be procured on the basis of full and open competition?

General **Greenberg**. We believe it should be awarded on the basis of full and open competition. The whole game plan is to qualify the plastic ammunition as an alternate material and they buy it on a full and open competition basis from the low-cost producer.

That process is ongoing and by next year, the summer of next year, we should be letting contracts for all of that material on a competitive basis.

Now, Lake City will be allowed to compete in that competition.

OFFSHORE PROCUREMENT OF AMMUNITION

Mr. **Miller**. We have been talking about ammunition and our manufacturing base and it kind of ties together because if they can produce and sell it somewhere, they are able to keep the production line running and we have a base.

Do we sell ammunition to foreign nations?

General **Greenberg**. Yes, sir. We certainly do.

Mr. **Miller**. Do we buy ammunition from foreign nations?

General **Greenberg**. Yes, sir.

Mr. **Miller**. How does that compare in terms of dollar volume? If you do not have that, could you furnish that for the record?

General GREENBERG. Yes, sir; I can.

That may be a difficult number to arrive at because our foreign military sales is available to us, but there is a law called the Goodling bill which permits contractors to sell overseas as private companies and then build the ammunition in the States.

I don't have a lot of visibility into that portion, but I will give you the foreign military sales portion, sir.

Mr. MILLER. That would be fine.

[The information follows:]

Sir, during fiscal year 1988, the Army procured approximately $119 million worth of conventional ammunition from foreign sources. Procurements from foreign sources in fiscal year 1989 have totalled approximately $46 million as of 30 April 1989. Army Foreign Military Sales during this same period total approximately $97 million in fiscal year 1988 and approximately $76 million in fiscal year 1989 as of 30 April 1989.

Mr. MILLER. What about the interchangeability of the ammunition that we would use and the other NATO nations would use? Is it interchangeable?

General GREENBERG. There is much that is not interchangeable. There is a whole lot which is interchangeable.

We have produced a number of manuals for whole NATO dissemination which lays out the systems and what the compatibility is between those. We are very, very concerned that our ammunition be insofar as possible compatible with their systems; their systems with ours.

As you know, perhaps the M109 howitzer is the backbone of NATO. It is used in every country and our ammunition is fully compatible with their M109 howitzer.

Mr. MILLER. We are not liable to get into a problem where they have the delivery tool, whatever it may be, handguns, large barrels, and we have ammunition that almost fits, but will not fit?

General GREENBERG. There are some cases where that is true, sir, but what we are attempting to do is provide our NATO allies with the information to ensure that they know what is compatible and what isn't.

We will never have total compatibility because of the sovereignty of each country to buy their own systems and there is nothing that I know of which mandates that they be compatible.

However, much of the ammunition is.

Mr. MILLER. But we are exchanging ideas and talking to them about this continuously, I hope.

General GREENBERG. Yes, sir.

We participate in, I would say, more than a dozen international panels involving ammunition and these are called standardization panels for that reason, to attempt, where possible, to standardize the ammunition in weapon systems.

We have hundreds of data exchange agreements where we share our technology with other countries also and we are also a little slow about coming on in the Pacific.

We are not nearly as far along there as we are in Europe.

However, we are catching up, and by, hopefully this time next year, we will have a manual which will lay out what systems are compatible to all of the countries in the Pacific.

Mr. Miller. Just so we don't have a square peg to fit in a round hole so it won't work right when it is needed.

General Greenberg. I understand.

Mr. Miller. We have quite a bit of our ammunition stored now out of the country around the world—is that true?

General Greenberg. That is correct.

Mr. Miller. And you feel we have ample protection for that ammunition?

General Greenberg. Absolutely.

Mr. Miller. Do we use only our own personnel to protect it or do we rely on native individuals from a foreign nation?

General Greenberg. Most of the time, it is a combination. We rely on our organization, U.S. organizations, to do accountability, to do some limited control, but we rely on the host nation to provide the physical guard force and the handling of ammunition.

Mr. Miller. Do you handle or procure or in any way have anything to do with the nuclear weapons?

General Greenberg. Yes, sir; we do.

Mr. Miller. Are you the sole procurement area for nuclear——

General Greenberg. That is correct.

Mr. Miller. Can you give us a little background as to what your responsibilities are?

General Greenberg. Within the business of ammunition, the Department of Energy is responsible, using their own resources, to provide what they call the physics package, which is the nuclear device.

We then buy the delivery system. We buy the external fuzing and firing components which cause the round to be safe on the ground and, of course, arm itself at the proper time.

We work very closely with the Department of Energy to ensure that when a weapon system is designed that it is totally integrated and compatible as it moves along.

There are many, many hours spent in joint committees to ensure that that happens and it is very tightly controlled by the Department of Defense.

Mr. Miller. But it is your responsibility to warehouse nuclear weapons?

General Greenberg. That is correct.

Mr. Miller. And that would require additional security people beyond the normal weapons and ammunition that we speak of?

General Greenberg. Yes, sir.

Mr. Miller. Do we have those nuclear weapons stored, inventoried somewhere around the world?

General Greenberg. Yes, sir. We do and in that particular case, they are secured by U.S. people, of course.

Mr. Miller. So we have control, then; that is what you are saying?

General Greenberg. We have total control and the term is custody; total custody and control.

Mr. Miller. Very good.

Thank you.

Mr. Wilson. I would like to ask one more queston, General.

On 105 tank ammunition, I had some conversations with some of your people who pretty well persuaded me that the XM900E1 was the round of the future and there wasn't any point in buying any other rounds.

Is the testing coming along okay on that?

General **Greenberg**. The testing is coming along. There have been some technical problems.

Let me ask Mr. Calabrese to address that.

Mr. **Calabrese** We ran into some problems in two areas; one of which is dispersion on a sequence of rounds, how they would form at the target for accuracy. That caused us to go back and look at some alternate design fixes for the projectile.

Last month we tested those fixes and we feel we have solved that problem.

We are now building test hardware to verify that feature and that test should be done within the next two weeks.

Assuming that it is a success, we will proceed with that round through type classification or approval of use.

The other area was the propellant. We are utilizing a different propellant. It is a low-vulnerability propellant, but one which must provide a higher round velocity. We have seen characteristics which need to be clarified and we have an investigation ongoing.

My most recent information indicates that we will have an answer in the next two or three weeks if there really is a problem or if we have the propellant in hand.

Mr. **Wilson**. Well, if more delays are forthcoming, if we fail to solve the problems, is there any consideration to procure more of the M833 round or Israeli round?

Mr. **Calabrese**. No. sir.

General **Greenberg**. Sir, we have adjusted our buy in 1990 and 1991 so that we have allowed for the delay that Mr. Calabrese anticipates.

We still expect to make a type classification decision by the end of the calendar year. We feel that with the reduced quantities that we have asked for in 1990 and 1991, the 1989 quantity that would be deliverable in 1990 would then be deliverable within the funded delivery period.

The M833 and the 3108 in head-to-head tests with the 900 just did not measure up.

Mr. **Wilson**. To either one of them,

General **Greenberg**. No. sir.

The quality of the round and the kill potential of the 900 is so much better than the other two that we would be wasting the taxpayers' money to buy any more M833s and 3108s. Our tests have confirmed that, sir.

Mr. **Wilson**. Do we intend to replace the 105-millimeter guns in all the A-1 tanks with the 120?

General **Greenberg**. Sir, I don't believe we are.

Mr. **Wilson**. I mean all the M-1 tanks?

General **Greenberg**. I don't believe we are because eventually we are going to be passing those back to the Reserve and the National Guard.

I am not certain what the Army's field plans are for fielding nothing but 120 millimeters in Europe, for example, but when we do, we will be bringing those back and moving them into the Guard and the Reserve, I am certain.

Mr. **Wilson**. We are certainly going to replace all of them in Europe?

General **Greenberg**. Yes, sir.

Mr. **Wilson**. I thought we were well on our way to accomplishing that.

General **Greenberg**. I think we are, but we still have 105s in Europe.

Mr. **Wilson**. Would you say 20 percent of them?

General **Greenberg**. I would say about 35 percent.

Mr. **Wilson**. But regardless of that, you will still need the 105 for the M60s and the Guard and Reserves and all that?

General **Greenberg**. For some time; yes, sir.

Mr. **Wilson**. Have you read the book on the M-1 tank development, The King of the Killing Zone?

General **Greenberg**. No, sir.

Mr. **Wilson**. Spectacular book. I bet you would really enjoy it.

Anybody have any other questions?

Mr. **McDade**. No questions.

Mr. **Miller**. Thank you.

Mr. **Wilson**. We have other questions for the record.

[Clerk's note.—Questions submitted for the record and the answers thereto follow:]

Ammunition Trends

Question. In recent years, we have moved toward "systems contractors" to supply a complete round of ammunition. Previously, the government has served as the contractor. For example, for the 105mm tank ammunition the government is the integrator but for the new 120mm tank ammunition, the government buys complete rounds from the contractor. Systems contractors are also used for the ADAM and RAAMS artillery projectiles and the new 120mm mortar ammunition. Systems contractors are also used for the newer "smart munitions" such as SADARM.

Do you see any change in this trend?

Answer. Systems contracts put the burden of performance on the integrating contractor, focuses responsibility, allows the government to receive warranty provisions to ensure that the stockpile is functional. We do not see a change in the trend toward systems contracts for complex munitions.

Question. When the Government is the integrator, it can determine where the components are produced and can "workload" the government owned ammunition facilities. When a systems contractor is used, he makes those decisions. This is already having an adverse impact on the work force at GOCO plants. Is the Army concerned about this trend?

Answer. Yes Sir. For the most part, systems contractors make use of existing government load, assemble and pack plants because of the capital requirements to establish their own captive facilities. The workload at the GOCO's is declining primarily because the ammunition budget is declining. The workload at the GOCO's will decline also as a function of smart munitions which are in development and a new generation of more complex munitions. They cost more and are more lethal than older technology munitions so fewer will be purchased.

Question. What can be done about it?

Answer. We will continue to encourage systems contractors to use existing government owned facilities whenever possible. The nature of ammunition production mandates that a certain amount of work involving lethal munitions will be done in Government-owned facilities in any event.

Question. Does the Army have the legal authority to direct a system contractor to use specified production facilities? If so, what are the plans in this regard?

Answer. The Army in its solicitation can direct the system contractor to use certain government facilities as subcontractors. However, the government cannot direct the use of facilities after the fact without invalidating the warranty provisions of the contract. Alternatively, certain components can be removed from the system contractor and furnished directly by the government.

Question. Another trend is that new rounds are significantly more expensive than the ones they replace, for example:

	Old		New	
Artillery cargo round	M483	$467	M864	$744
Heavy Mortar HE	4.2⊥"	114	120mm	350
105mm Tank	M833	631	M900	1,571
120mm Tank	M829	2,033	Deleted	Deleted

This means that we are buying far fewer rounds with the same level of funding. What impact do you see this trend having on our day of supply situation?

Answer. Because of the high cost of newer rounds, days of supply increase at a slower rate. The impact on overall days of supply is significant, since modest increases in days of supply for newer rounds are offset by the drawdown of older war reserve munitions, such as the 155mm HE M107, to support training.

Question. Do your war reserve calculations show that fewer rounds are needed with the new, more capable rounds?

Answer. In many cases no. Newer rounds are being procured primarily to counter the increased capability of the threat, and to defeat enemy targets which older munitions are not effective against. A good example is tank main gun ammunition. ———.

Question. A third trend in ammunition procurement is that the cost of the rounds we are procuring is being increasingly consumed by high-tech electronics instead of metal, propellants and explosives. What impact do you see this having on our government owned ammunition base?

Answer. The third trend in ammunition increases ammunition lethality. Fewer rounds will be required to do the same job as older technology munitions. The GOCO base will continue to perform its traditional LAP function but will adjust to accommodate the fewer number of traditional munition components purchased.

AMMUNITION PLANT CLOSURES AND REDUCTION

M864 PROJECTILES

Question. General Greenberg, you mention in your statement that fiscal year 1990 and 1991 procurements of the M864 artillery round are being reduced to the extent that it may be necessary to close a metal parts plant and a load, assemble and pack plant. What plants would be involved in such an action?

Answer. As a result of the plus-up of $300.0 million in FY 1990, the Army has been able to increase its buy of M864's from 120,000 to 240,000. This additional quantity will provide metal parts workload for both Scranton and Louisiana AAP's through FY 1992 execution year. In addition, both Kansas & Milan AAP's will both be utilized for load, assemble & pack operations.

In FY 1991, the M864 program (120,000) will be sufficient to support only one metal parts facility; Louisiana AAP or Scranton AAP, and one load, assemble, and pack (LAP) facility, either Kansas or Milan AAP, to be determined by the head-to-head competition. The Army would down-select to a single LAP facility since either plant has adequate capacity to produce the entire quantity.

Question. On what basis would you decide which plant to close?

Answer. The primary consideration would be retention of the most critical facilities based on overall efficiencies as well as the importance of other work at each facility.

Question. What would be the employment impact of closing each of the four plants you have mentioned?

Answer. Based on the April 1, 1989 plant populations, and considering estimated staff strength after inactivation, the following employment impacts are to be expected:

Kansas/Milan—In FY 1990, both Milan and Kansas AAPs will receive a portion of the load, assemble and pack (LAP) workload based on a procurement quantity of 240,000 projectiles. In FY 1991, and M864 Program (120,000) will be sufficient to support only one LAP facility, (either Kansas or Milan), to be determined by head-to-head competition.

At Kansas AAP, current government workload is scheduled to be completed by July 1990. The total layoffs, attributed to government directed workload are 196 during the fourth quarter of FY 1989 and an additional 180 in July 1990.

Milan—Layoffs of approximately 200 would begin with the completion of the FY 1990 program production run in September 1991. Milan is not solely dependent upon the M864 to remain viable and would continue in an active status due to product diversification and customer demand for Milan products.

Scranton/Louisiana—As a result of the $300.0 Million Plus-up in FY 1990 and the subsequent buy of 240,000 projectiles, both Scranton and Louisiana will be utilized for metal parts production. In FY 1991, the M864 program (120,000) will support only one metal parts facility, either Scranton or Louisiana. Since either facility is capable of producing the entire quantity of 120,000 of FY 1991 and the out years, downselecting to a single metal parts producer is likely. Subsequent increases in funding in FY 1991 for the M864 would again permit workloading both Scranton and Louisiana AAPs.

Scranton's future is more dependent on the M864 production. Without this workload, layoffs of approximately 450 will begin in May 1991 and continue through October 1991.

Louisiana would experience layoffs of approximately 200 contractor employees commencing with the completion of the FY 1990 program production run in September 1991.

Question. What would it cost to close these plants and what would be the annual maintenance costs?

Answer. In FY 1990, the plus-up of $300.0 million and subsequent buy of 240,000 M864 projectiles will provide metal parts workload for both Scranton and Louisiana and Load, Assemble and Pack (LAP) workload for both Kansas and Milan. In FY 1991, M864 program (120,000) will be sufficient to support only one metal parts facility and one LAP facility. In the case of metal parts, the Army will determine which of the facilities will be selected to produce the program quantities, with LAP, head-to-head competition, between Kansas and Milan will determine the split or decision to downselect to just one producer. Should it be necessary to close entire facilities or just M864 production lines, the related costs are estimated to be:

Scranton—Costs to layaway are estimated to be $5.1 million in FY 1991. This is in addition to an estimated $1.1 million to layaway the M509 line in FY 1990. Annual maintenance costs are estimated at $2.1 million.

Louisiana—The impact of M864 workload at Louisiana is approximately 450 man-years per year; consequently, this facility would not close but the workforce would be reduced.

Kansas—Cost to layaway, this facility is estimated at $2.6 million with annual maintenance costs of an estimated $3.9 million. This would not include administrative areas which are expected to remain active for third-party work.

Milan—Cost to layaway the M864 production equipment at this facility is estimated at $0.3 million. Milan is not solely dependent upon the M864 workload to remain viable and would remain in an active status due to product diversification.

Question. If the metal parts plant at Louisiana Army Ammunition Plant is closed would other production activities at that plant continue? If not, why not?

Answer. Yes, Louisiana would remain an active production facility without the M864 metal parts workload. The M864 metal parts workload represents approximately 450 direct/indirect man-years of effort annually. However, without a minimum of 170,000 metal parts (M864, M825, Binary, MICLIC) the "Y" line cannot be operated economically and efficiently.

Question. How many employees work at the metal parts plant at Louisiana and how many work elsewhere?

Answer. The following personnel breakout for Louisiana AAP is provided based on the April 1, 1989 employee population level of 1,823:

	Amount
Direct Labor, Metal Parts	372
Direct Labor, LAP	320

	Amount
Production Overhead	489
Non-Production Overhead	578
Leave of Absence	51
OMA Funded	13
Total	1,823

Question. How many additional M864 projectiles would have to be procured in fiscal year 1990 and 1991, and at what cost, in order to sustain production at all four facilities at a minimum sustaining rate and at an economic rate?

Answer. No additional M864 projectiles are required in FY 1990 to sustain production at all four facilities. The 240,000 quantity will provide metal parts workload for both Scranton and Louisiana AAPs through FY 1992 Execution Year. In addition, both Kansas and Milan AAPs will be utilized for Load, Assemble and Pack (LAP) operations.

In FY 1991, an additional 96,000 would be required to support an MSR and 120,000 for an economic rate (1–8–5). The costs for these additional quantities are as follows:

	MSR 96,000	1–8–5 120,000
M864 Projectile	71,730,240	$89,662,800
M762Fuze	11,692,032	14,615,000
M203 Propelling charge	50,488,320	63,110,400
	133,910,592	167,388,200

Question. What is the procurement strategy and milestones for the fiscal year 1989 and 1990 procurements of the M864?

Answer. The FY 1989/90 procurement strategy for the M864 Projectile Body and Ogive and Load, Assemble & Pack (LAP) is as follows:

FY 1989: Scranton AAP (60,000 metal parts) award anticipated July 28, 1989. Louisiana AAP (93,000 metal parts) already awarded. The Load, Assemble and Pack (LAP) will be completed between Milan and Kansas AAPs and award is anticipated in July 1989.

FY 1990: Scranton AAP (60,000 metal parts) award anticipated August 1990. Louisiana AAP (180,000 metal parts) award anticipated December 1989. The LAP of 240,000 will be split between Milan and Kansas AAPs. Award anticipated in December 1989.

OTHER REDUCTIONS

Question. Your statement also mentions that the fiscal year 1990 and 1991 ammunition budget will require reduction of about 6,000 man-years at the government owned ammunition plants. For the record provide a list of the affected facilities and the impact on each.

Answer. The Army is most concerned with the forthcoming layoff of contractor employees and the potential closing of still other production facilities. Reduced workloading of ammunition plants is directly related to reductions in the Defense Budget request for ammunition and to the nature of the modern munitions being bought. The reduction of work available from the FY 1990 & FY 1991 ammunition budgets, of all customers, in man-years is as follows:

Plant	Manyear adjustments fiscal year 1990	Manyear adjustments fiscal year 1991	Total adjustments
Crane AAA	−20	−200	−220
Holston AAP	−250	−100	−350
Indiana AAP	−150	−100	−250
Iowa AAP	−150	-	−150
Kansas AAP	−200 to −400	+100	−100 to −300
Lake City AAP	−500	+100	−400
Lone Star AAP	−700	−300	−1000
Longhorn AAP	−350	+100	−250
Louisiana AAP	−90	−300	−390
McAlester AAP	+60	−100	−40
Milan AAP	+50	−100	−50
Mississippi AAP	−900	−150	−1050
Pine Bluff Arsenal	−150	−150	−300
Radford AAP	−700	−300	−1000
Scranton AAP	−200	−400	−600
Sunflower AAP	0	0	0
Total	−4250 to −4450	−1900	−6,150 to −6350

Note. In both FY 1990 and FY 1991, funding levels will require across the board employment level reductions at nearly all facilities as the workload and workforce levels are balanced. In some cases, the FY 1991 funding level may require downselecting to a single source versus the dual source concept. These are approximate adjustments, as the actual number of layoffs depend on contractor management decisions in operating plants with reduced workload.

Question. How many man-years are being reduced at GOCO facilities in FY 1989? Provide a list for the record.

Answer. Based on the reduction of work available from the FY 1989 ammunition budget, of all customers, the following man-years adjustments are required.

FY 1989 Man-year adjustments

Plant:	
Crane AAA	+41
Holston AAP	+2
Indiana AAP	−356
Iowa AAP	−291
Kansas AAP	−475
Lake City AAP	−83
Lone Star AAP	+57
Longhorn AAP	−244
Louisiana AAP	−404
McAlester AAP	+63
Milan AAP	−563
Mississippi AAP	−640
Pine Bluff Arsenal	−191
Radford AAP	−765
Scranton AAP	−85
Sunflower AAP	0
Total	−3,934

Question. What would it cost in additional ammunition procurement, on a fully funded basis, in fiscal year 1990 and 1991 to avoid any workload reductions?

Answer. An in-depth study of all service requirements versus OSD guidance would need to be performed to provide an accurate portrayal of ammunition programs that would not exceed authorized levels of supply thus preventing complete line shut downs in the future. It is estimated that an additional $1.0 to $1.5 billion yearly would be required to maintain workload levels at the fourteen (14) active GOCO plants. Reductions in some plants product lines can not be avoided even with an increased FY 1990 program. Additionally, safety considerations could preclude increasing specific plant workload levels.

Question. What is the employment impact at contractor owned ammunition facilities from the 1990 to 1991 budgets and what would be required to avoid these reductions?

Answer. Over two hundred Defense contractors make up the commercial portion of the ammunition production base. In addition to government work many of these contractors have a range of commercial products that fill the void when government work is not available. Therefore, it has not been common practice for the Army to track and analyze these statistics nor would it be easy to assess such workload impacts.

Question. Provide for the record a detailed list, by end item, of ammunition that would have to be procured to avoid the 6,000 man-year reduction and a separate list showing what would have to be procured to avoid closing any plants.

Answer. An in-depth study of all service requirements versus OSD guidance would need to be performed to provide an accurate portrayal of ammunition programs that would not exceed authorized levels of supply, thus preventing complete line shut down in the future.

MISSISSIPPI ARMY AMMUNITION PLANT

Question. In Fiscal Year 1987, Congress appropriated $160.2 million to fix the many production problems at the Mississippi Army Ammunition Plant. The installation of new equipment and other work was to have been completed by August 1990. What is the status of this project? When will the Mississippi Army Ammunition Plant be fully proven out?

Answer. Approximately 80 percent of the completed facility will be proven out in January 1990. The balance of the process consisting of relatively straight forward production techniques already in place in a number of other plants cannot be proven out within the existing workload.

Question. Fiscal year 1989 was the last year of funding for the M483 projectile, the only item that the Mississippi plant produces. The fiscal year 1990 budget includes $20.8 million to put the plant in layaway. What is the total cost of layaway at Mississippi?

Answer. Total cost to shut the plant down and lay it away is estimated at $80 to $100 million.

Question. What is our day-of-supply situation with the M483 and how does it compare with other 155mm artillery rounds?

Answer. We have ——— of supply of the M483 on hand at the end of the fiscal year 1989 funded delivery period. Days of supply for other 155mm artillery rounds are shown below. ———.

Question. Given peacetime consumption of the M483, do you foresee needing to procure additional M483's in the future?

Answer. Peacetime consumption is limited to test, and the annual test requirement is only 7,000 rounds. At current funding levels we do not anticipate procuring additional M483's, but instead plan to procure the 155mm M864 Baseburner which provides greater range capability.

Question. What would it cost in fiscal year 1990 and 1991 to continue to produce the M483 at Mississippi at a minimum sustaining rate and at an economic production rate?

Answer.

[In millions of dollars]

	MSR	Economic
Rate	240K/YR	336K/YR
Cost (annual)	$121	$135

Above cost does not include the propelling charges and fuzes.

Question. What would it cost to convert Mississippi to produce something else? What alternatives exist in this regard and what are your views of this possibility?

Answer.

[In millions of dollars]

Ammunition item	Dollar value
Multiple Launch Rocket System (MLRS):	
Grenade Metal Parts M77	0.5
Grenade LAP	0.3
Projectile 155MM Basebleed M864:	
Projectile Body MPTS	6.9
OGIVE, Base & Base Closure	21.0
Projectile LAP	0.4
Cartridge 120MM Mortar Smoke and Illumination, XM929 & XM930:	
Metal Parts, Smk & Illum	11.4
Metal Parts, HE	19.4
Projectile 155MM miscellaneous:	
LAP—SADARM	1.1
Projectile Metal Parts Trainer M804	8.9
Projectile Metal Parts ADAM M692 & M731	48.8

It must be pointed out that there are adequate numbers of active or planned producers in the base to meet current and projected requirements. Our recommendation for additional workload for MSAAP is to suggest to the operating contractor that he become aggressive in securing third party work under the auspices of the Plant Utilization Policy, which could include Direct Foreign Sales of commercial products such as aluminum forgings. Other plants in the AMCCOM industrial base have been very successful in their marketing programs and have significantly affected their own future. Such an approach should be contemplated for MSAAP.

Question. What is the delivery schedule for the fiscal year 1989 procurement of the M483?

Answer. Projectile, December 1989; CARGO Complete, May 1990; and LAP Complete July 1990.

RIVERBANK ARMY AMMUNITION PLANT

Question. In Fiscal year 1988 the Congress provided $20 million to upgrade facilities at the Riverbank Army Ammunition Plant. The intention was to enable the plant to compete on a wide range of medium caliber metal parts procurement. Last November, the Committee approved the initial $770,000 of this funding to correct deficiencies and equipment voids in existing lines. The Committee just received the Army's detailed plans for the use of the remainder to establish a new flexible line. Why did it take so long?

Answer. The details which were initially requested and recently forwarded to the Committee are those which can only be obtained by completion of the facility design. In order to comply with requested details such as equipment lists and costs, the determination of the types of equipment required must first be made. To do this, first processes must be clearly identified, the types of equipment, quotes must be obtained; only then can a determination be made if the flex line is technically feasible within the prescribed funding constraints. It had been determined that the high confidence information initially required by Congress could be provided through completion of the facility design. Norris Industries has been tasked on 20 August 1988 to provide this information. However, it has taken to 15 April 1989 to complete.

Question. What are the present milestones for installation of the new line?

Answer. Installation of equipment is currently estimated to begin 10 months after the authority to proceed is granted, with completion scheduled 8 months thereafter.

Question. What is the current workforce at Riverbank?

Answer. The total population of RBAAP as of the week ending 7 May 1989 is 322 people, broken out as follows:

	Amount
Grenade line	150
Mortar line	142
OMA/Admin	30
Total	322

Question. Will production funds earmarked for Riverbank in Fiscal Year 1988 and 1989 be sufficient to maintain this workforce level? Is so, for how long?

Answer. The workforce level can be maintained on the grenade line at 150 people running 1.2 million per month until June 1990. The workforce level can be maintained on the mortar line at 142 people running 94,000 a month (due to some contracts being awarded through competitive bidding) until February 1990. There are approximately 30 OMA/Admin people that are contractor discretionary.

Question. Are additional funds required in Fiscal Year 1990 to maintain the workforce until the new line is installed? If so, what are your suggestions?

Answer. Additional funds may be required in FY 1990 to maintain the current workforce level unless Norris Industries is successful in bidding for available workload. Equivalent workload is required as follows: Grenade Line: 22,362,000 Grenade Metal Parts and Mortar Line: 2,126,574 Mortar Metal Parts.

Question. What is the long range prospect for Riverbank, given the declining budgets and the large existing metal parts base?

Answer. Sufficient workload is forecast in the outyears to maintain the workforce at RBAAP only if Norris Industries' bids are competitive.

XM900E1 105MM TANK AMMUNITION

Question. The Reagan budget included $44.0 million for 27,800 rounds of XM900E1 105mm armor piercing tank ammunition. The Bush revision decreased this amount by $30.9 million. What was the basis for this reduction?

Answer. This is the advance 105-millimeter APFSDS-T tank round in development which has slipped type classification for limited production (TCLP) by one year due to technical ———. To assure program execution within the funded delivery period and allowing for the aforementioned TCLP slip in FY 1989, the FY 1990 decrement budget action was made.

Question. In fiscal year 1987, Congress appropriated $30.9 million for the initial procurement of 16,000 rounds but instructed the Army to report to the Committees upon completion of type classification prior to obligation of funds. It is our understanding that the round has experienced some problems in dispersion and propulsion in testing. What is the nature of these problems and what is being done to fix them?

Answer. Overall the target impact dispersion (TID) test results across temperature variations are acceptable per performance specifications; however, there are rounds in this test that sporadically fail TID specifications. This requires further resolution. Propellant velocity variability results during safety testing has not been experienced recently. A "Red" team has been formed to resolve the TID problems and various tests of mechanical and chemical properties of the XM43 propellant are being conducted at BRL and ARDEC.

Question. What is the schedule for additional testing of this round?

Answer. Milestone dates are: a. Modified sabot design testing—3rd Qtr FY89; b. Final design decision—3rd Qtr FY89; c. Developmental Testing—4th Qtr FY89; and d. Type Classification Limited Production—4th Qtr FY 1989.

Question. When will you know whether your proposed fixes have worked and what is the earliest date for type classification?

Answer. After completion of final design testing, validity of proposed fixes will be known. It is noteworthy that initial test results of redesigned rounds with modified sabots have been very favorable. It is fully expected that type classification limited production will be completed during September 1989.

Question. What is the procurement strategy for the XM900E1?

Answer. The procurement strategy is two phased. The FY 1989, low rate initial production, is sole source to the research and development producers at cost plus incentive fee pricing. The FY 1990 and FY 1991 programs will be restricted competition to the production base at a fixed price. (Includes the two depleted uranium penetrator producers.)

Question. The Army has done some side-by-side testing of the current 105mm round, the M833, with an Israeli round, CL3108. What were the results of those tests? Provide a summary now and details for the record.

Answer. During mid January to mid February 1989, side-by-side comparative testing was conducted. To add validity to these tests, the XM900E1 round was included in the original test group. Unofficial results are the XM900E1 wins hands down while the CL3108 and the M833 exhibited relatively equal performance. A copy of the joint U.S. and Israeli final report will be forwarded for the record, after publication in the July 1989 time-frame.

[CLERK'S NOTE.—As of September 13, 1989, the report had not been completed and submitted to the Committee.]

Question. If testing of the XM900E1 causes further delays, would the Army consider procuring more of the M833 or the CL3108?

Answer. No, the lethality achieved by the M833 or the CL3108 round is not sufficient to defeat the current threat, which is the ——— in the European theater. The XM900E1 round in its final stages of development exhibits the capability to defeat this threat. Procurement of the XM900E1 round will extend the longevity of the U.S. 105mm tank fleet in the inventory.

Question. What other alternatives are being considered?

Answer. Continued Army procurement of the recently introduced Armament Enhancement Initiative (AEI) 120mm M829A1 armor piercing fin stabilized discarding sabot with tracer (APFSDS-T) tank round in Europe and the final development of the XM900E1 round for the 105mm tank fleet. It is worth the risk to await the fielding and development of the most lethal tank ammunition to defeat the threat while modernizing the force.

Question. The Navy recently decided to discontinue the use of depleted uranium in its Close-In-Weapon System ammunition. What impact will this decision have on the DU industrial base and the price of DU for Army tank rounds?

Answer. We cannot predict with any certainty the future industrial impact and unit price impact for Army rounds based on this Navy decision. All munition items with DU penetrators, Army, Navy and Air Force are procured via systems contracts with the prime contractor obtaining the DU penetrator via sub-contracts between his corporation and the DU production base. These costs are not and do not have to be provided to the government. The costs we have are complete round costs without detail breakout.

Question. What role did the Army play in the Navy's decision?

Answer. The Navy decision was one affecting combat power of a weapon system unique to the Navy. When the Army was notified, we advised Navy of potential impacts to the DU production base and asked that these impacts be considered if they had not previously been considered.

AMMUNITION PRODUCTION BASE POLICY

Question. Last July, the Department of defense ammunition production base policy statement was submitted to the Committee. We will insert the statement in the record in full but please summarize it for us now.

Answer. The Production Base Policy document is a comprehensive statement of policies and procedures used by the Army to establish and maintain the ammunition production base. Related issues such as GOCO vs COCO workloading methods, self-facilitization and third party contracting are dealt with in depth.

Question. What specific actions have been taken to implement this policy and what additional actions are planned?

Answer. The production base policy as provided to the committee in July 1988 has been implemented at AMCCOM. The policy guides daily activity with regard to production base issues.

Question. One of the policies is to maintain a cadre of critical skills for mobilization production facilities. Are any of the 6,000 man-years of ammunition production employment being lost in fiscal year 1990/1991 part of this cadre? Please explain.

Answer. Although the reductions reduce the numbers of personnel accomplishing various skills, consolidation of work efforts have been accomplished to maintain the specific skills to the maximum extent possible. When reductions are required the loss of a complete line or those one of a kind skills may also be lost.

Question. How is it possible to maintain this cadre as overall ammunition funding decreases?

Answer. Although the amount of funding available for workloading is important, the mix of ammunition which is procured yearly more heavily influences the critical skills required. An option available to maintain these critical skills is to workload into Government plants those items traditionally manufactured in the commercial sector.

Question. Have specific cadre requirements been identified for specific GOGO, GOCO, and GOCO facilities? If so, please identify them for the record. If not, why not?

Answer. These requirements will be ascertained from information provided as a part of the DD Form 1519 TEST, April 1989. Block 22, Critical Skills, requires the listing of key critical skills required for production of the survey item. This information will form the basis for specific cadre requirements to be identified.

Question. Can you identify some instances in the last year where production was workloaded to a special facility rather than competed in order to maintain this cadre?

Answer. The MJU-7/B and MJU-8A/B Infrared Flares were workloaded to Longhorn AAP to retain IR Flare expertise within the Government base and to expand a shrinking production base. Also, the M21 Simulator, was workloaded to Longhorn AAP because the expertise was available to deliver product to prevent training impacts due to non-delivery of acceptable commercial product.

Question. The policy encourages self-facilitization, under which a contractor pays the cost of facilities and is "reimbursed" in the price he charges for the end item. How is mobilization production capability provided under such an arrangement?

Answer. Under self-facilitization the contractor facilitizes for the peacetime capability. This capability will be provided as economically as possible and often utilized the capability of a 2 or 3 shift basis. This provides little, if any, excess capacity for surge or mobilization. When additional capacity is desired for mobilization and funding can be made available, the contractor funding requires augmentation with Government funding for the additional capacity.

Question. Since the contractor owns the facilities under such an arrangement, who is responsible for care and maintenance of the facilities once production is completed? What will be the situation specifically with respect to the AT–4?

Answer. The contractor is responsible for care and maintenance of the facilities once production is completed. If the government wishes to retain a mobilization capability, then it will have to pay the contractor to layaway and maintain the facility for mobilization. An alternative to this option is for the contractor to manufacture similar items for peacetime, thereby, ensuring that modilization capability exists.

At this juncture, it is too soon to determine the status of AT–4 mobilization requirement beyond FY 1991 or FY 1992. If AT–4 mobilization requirements are eliminated, some items of equipment will be MOB-assigned to Group 3 facilities at Joliet AAP. However, if AT–4 is retained for mobilization, then the Army must fund layaway and maintenance for Honeywell at Joliet AAP.

Question. Do you plan to extend this policy to GOCO and GOGO plants? If so, how will it work?

Answer. Self-facilitization may be extended to a GOCO plant if conditions make it advantageous to do so. This would generally be restricted to third party or facility contract situations, where there is no mob requirement and contractor investment may be severed. If the equipment will be integral with the Government-owned equipment and operations which have a mobilization need it would be more advantageous for Government investment. At this time there are no plans to extend this policy to a GOGO facility.

Question. The policy also calls for a reduction of government owned property in the possession of defense contractors. What about other government-owned equipment?

Answer. The Army goals for reducing Government Ownership are 5 percent in FY 1988 and an additional 2 percent per year FY 1989–92, are also being applied to AMCCOM controlled Government-owned equipment which is assigned to a contractor but kept in Government storage.

Question. What plans does the Army have to sell government owned ammunition facilities?

Answer. Existing facilities are retained in an active status if they satisfy a current requirement, remain economical and can operate within resources available. Active facilities are deactivated when production buys are insufficient to support economical unit costs and/or efficient use of resources, except for critical facilities needed to produce unique, high volume items for mobilization. Existing facilities are retained in an inactive status if they satisfy a mobilization requirement, and are in an immediate use posture, or can economically be made responsive. Inactive facilities are considered for reactivation when production buys are sufficient to support economical unit costs (including cost of reactivation), are sufficient to support efficient use of resources and/or supply a sole source item.

Facilities undergo disposal when they no longer support a peacetime or mobilization requirement, cannot economically be converted to support a new item or are no longer cost effective to retain. At present the Army is in the process of excessing three inactive facilities, Cornhusker Army Ammunition Plant (AA), St. Louis AAP, and Hays AAP. There are no plans to sell ammunition plants at this time.

Question. What specific plan does the Army have to implement this policy?

Answer. AMCCOM is currently developing plans to pursue leasing of ammunition plants as the most feasible method of implementing the intent of the policy.

Question. The policy states that metal parts are generally produced in the contractor owned sector unless "it is not the best interest of the production base." How is this best interest determined?

Answer. Decisions to place work in the GOCO sector of the base or decisions to allow the GOCO sector to compete in acquisitions of metal parts are based on factors such as capacity, cost, ability to meet deliveries, quantities to be produced, skill retentions, and stabilization of the workforce.

Question. The Committee continuously hears stories of ammunition or components being procured offshore. What is the policy in opening up competition to offshore producers and what requirements does the Army make of domestic producers with respect to offshore procurement of components?

Answer. Title 10 of United States Code, Section 2304 (10 USC 2304) states "Except as provided in subsections (b), (c), and (g) and except in the case of procurement procedures othewise expressly authorized by statute, the head of an agency in conducting a procurement for property or services shall obtain full and open competition. . . ." Ammunition procurements have been normally restricted to US/Canadian producers in accordance with one of the exceptions of this law, 10 USC 2304(3)(c). This exception authorizes restricting competition in order to maintain a domestic manufacturing base for items needed in case of national emergency or to achieve industrial mobilization.

There are specific instances where ammunition is procured offshore, i.e., when our minimum sustaining rate cannot be met domestically, international agreements, and coproduction arrangements. However, it is to the ammunition production base's advantage that these producers be encouraged to facilitize within the United States/Canada. This will assure development of reliable onshore sources of supply.

Critical (industrial preparedness planning list (IPPL)) item production is restricted to United States and Canada, as a minimum. Further restrictions are useed to protect GOCO, GOGO, and contractor-owned contractor-operated (COCO) mobilization production base producers, as justified.

Question. Are any changes of existing law or regulation required to implement the policy? If so, please provide the specifics for the record.

Answer. None to our knowledge.

[CLERK'S NOTE.—The ammunition production base policy statement follows:]

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301-8000

PRODUCTION AND
LOGISTICS

JUL 8 1988

(PS/IR)

Honorable Jamie L. Whitten
Chairman, Committee on Appropriations
House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

Your Committee's Report 100-410 raised various questions about the ammunition production base and requested a comprehensive Department of Defense (DoD) policy. Further, the Appropriations Conference Report 100-498 directed that Riverbank Army Ammunition Plant (AAP) be specifically addressed as part of the ammunition production base policy report.

The attached document contains policies for managing the Army's ammunition production base. The portions pertaining to government-owned property are consistent with the DoD property policies issued by the Under Secretary of Defense for Acquisition in November 1986 and furnished to you by the Secretary of Defense on January 23, 1987. Specifically, these policies state that private industry will, to the maximum extent possible, provide the plants and equipments required to support defense production. One major exception to private financing involves lethal munitions manufacturing. This includes chemical munitions; propellant and explosive manufacturing; and load, assembly, and pack operations.

These ammunition production base policies respond to the specific questions presented in Report 100-410. A cross-reference guide to these specific congressional concerns is included at the end of the attached policy paper.

Regarding Riverbank AAP, the Army deactivated it in accordance with (1) policies for plants that are not needed for peacetime ammunition procurement (page I-7 of attachment), and (2) policies to maximize ammunition metal parts production by the private sector (page II-1 of attachment). The circumstances which led to this decision have not changed. Therefore, the policies for Riverbank AAP are:

- To continue the plant in an inactive status since there are insufficient peacetime needs to justify reactivation.

- To continue to permit the facility to be used by the incumbent contractor to bid on programs subject to the application of appropriate rental factors or collection of rental fees.

o To support Congressional mandates to stablize the workforce.

DoD property policies direct the disposal of old, obsolete, and non-essential government property. The Services have been tasked to develop time-phased plans for disposing of non-essential/excess plants, equipment, and tooling. This includes active and inactive government-owned contractor-operated (GOCO) plants. When GOCOs are determined essential to the continuing performance of DoD programs, but, continued ownership by DoD is no longer necessary, these are candidates for negotiated sale to the operating contractors. Such negotiated sales are commonly referred to as "excess to ownership" sales.

Thank you for your continuing interest in our ammunition production base and government-owned property policies.

Sincerely,

Jack Katzen
Assistant Secretary of Defense
(Production & Logistics)

Attachment

Ammunition Production Base Management Policies

Executive Summary

1. This document contains policies for managing the Army's ammunition production base. These policies address areas of recent Congressional interest, incorporate Defense Department direction and senior Army management guidance, and provide the innovative ideas necessary to maintain a comprehensive ammunition production base management strategy. Many aspects of these statements find their genesis in statute/existing regulations and provide the foundation necessary for consistent, unified management of the base but are flexible enough to allow prudent application.

2. The following paragraphs summarize key aspects of the ammunition production base policy:

a. Mobilization Production Base: The mobilization production base is that portion of the United States and Canadian industrial base needed to support projected wartime needs. To achieve this goal, mobilization base considerations are incorporated early in the development cycle. Furthermore, critical items and critical components are restricted to the United States and Canada as a minimum, and can be further restricted to mobilization base producers or to critical producers, if required, for industrial preparedness purposes. End items and components are analyzed and item planning accomplished to balance the mobilization base. The production planning schedule (PPS) contract will be used as a vehicle to identify and retain production base capacity for mobilization planned items.

b. Retention of Cadre of Critical Skills for Mobilization Production Facilities: A cadre of personnel having critical skills essential for the reactivation and/or operation of mobilization production facilities is retained. This cadre is maintained in Government-owned, Government-operated (GOGO); Government-owned, contractor-operated (GOCO); and contractor-owned, contractor-operated (COCO) facilities. Protection of this cadre is a consideration in workloading GOGOs and GOCOs or restricting competition among the COCO base producers. Protection of critical skills is a consideration in acquisition strategy decisions related to restriction of procurement actions to the mobilization base or to critical producers.

c. Continuation, Deactivation, Reactivation, and Disposal of Production Base Facilities: Existing facilities are retained in an active status if they satisfy a current requirement, remain economical and can operate within resources available. Active facilities are deactivated when production buys are insufficient to support economical unit costs and/or efficient use of resources, except for critical facilities needed to produce unique, high volume items for mobilization. Existing facilities are retained in an inactive status if they satisfy a mobilization requirement, and are in an immediate use posture, or can economically be made responsive. Inactive facilities are considered for reactivation when production buys are sufficient to support economical unit costs (including cost of reactivation), are sufficient to support efficient use of resources and/or supply a sole source item. Facilities undergo disposal when they no longer support a peacetime or mobilization requirement, cannot economically be converted to support a new item or are no longer cost effective to retain.

d. Maximizing Competition (as Required by the Competition in Contracting Act (CICA)) in Light of Restricting Procurements to Maintain a Warm Base: Competition within the United States/Canadian industrial base is maximized to the fullest extent possible, except where specific suppliers must be protected and there is convincing evidence for such a restriction. The goal is to identify the base and maintain that base for critical items. It is the Army policy that quantities over and above the mobilization 1-8-5 capability that are necessary to maintain the existing base will be competed among the United States/Canadian industrial base. If there is not enough work for existing producers, then the Army will not increase the number of producers.

e. Workloading Government-Owned Army Ammunition Plants (AAPs): Plants are workloaded based on good business sense considering unique capabilities, cost, delivery, and skill retention. Workloading of the Government-owned AAPs is accomplished to stabilize the workforce in a reasonable manner to prevent major yearly fluctuations. A cadre of warm plants is maintained to supply unique items, provide surge mobilization capability, and to preserve skills which commercial industry is unwilling or unable to supply.

f. Use of Facilities When Similar Capabilities Exist at Government-Owned and Commercially-Owned Facilities: The decision as to which facility is utilized when dual capacity exists is based on factors such as capacity, cost, ability to meet deliveries, skills retention, maintaining critical producers, and workload balance. In general, metal parts are produced in the COCO sector, unless it is not in the best interest of the production base. The base must be balanced between Government and commercial producers to assure a cadre of expertise and physical capability.

g. Plant Utilization Policy at GOCO AAPs: The Plant Utilization Policy was developed to encourage utilization of the GOCO AAPs. The Army developed internal procedures for monitoring all work undertaken as a result of its policy. Such procedures assure collection of rental charges for use of equipment, when appropriate, non-interference with Army work and proper allocation of all incurred costs.

h. Other Considerations: To maintain the ammunition production base other factors must be considered. First, ammunition base producers are provided an equal opportunity to compete for North Atlantic Treaty Organization (NATO) common procurements. Additionally, while procurements are directed first to those United States/Canadian facilities critical to United States defense demands, there are specific instances where off-shore procurement is allowable. Finally, the Army Environmental Program relates to the protection and preservation of environmental quality and requires all elements of the production base to ensure that environmental consequences are assessed to minimize adverse effects on the private capital or human environment.

i. The Army-Owned Ammunition Factories: The Army policy is primary reliance on private industry for production of military items. The only major exception to that policy has been for the production of lethal munitions in production facilities solely used for the manufacture of items having no civilian use.

j. Self-Facilitization: Government policy, stated in Federal Acquisition Regulation (FAR) 45.302-1, is that "Contractors shall furnish all facilities required for performing Government contracts except as provided in this subsection." Accordingly, commercial industry investment in production facilities to satisfy defense requirements is encouraged. Exceptions to this policy require certification that private financing of industrial facilities was sought but not available, or that private financing was determined not to be advantageous to the Government, and that the defense contract cannot be accomplished without government-owned industrial facilities being provided. Lethal munitions GOCOs generally fall within this exception.

k. Filling Equipment Voids and Eliminating Deficiencies Within the Laidaway Mobilization Production Base: Plant equipment packages (PEPs) are upgraded by filling voids and replacing deficient equipment within the available resources. Longterm goals are to maintain and upgrade those essential PEPs which are required for mobilization. The Army encourages commercial industry to self-invest.

1. Reduction of Government-Owned Property in the Possession of Defense Contractors: The Army supports the DOD policy to reduce ownership of Government-furnished property in the possession of defense contractors. Additionally, it is the policy of the Army to strictly limit its funding for the ownership of industrial facilities, equipment, and material.

3. This document provides a comprehensive, concise reference on policies affecting the ammunition production base and how it is managed by the Army. Adherence to these policies is required to assure that critical and unique capabilities and skills are available and sufficient for the national defense.

Ammunition Production Base Management Policies

PAGE

Executive Summary

Section I, The Ammunition Production Base:

A. General Policy I-I

B. The Mobilization Base I-2

C. Retention of Cadre of Critical Skills for Mobilization I-5

D. Continuation, Deactivation, Reactivation and Disposal I- 7

Section II, Procurement:

A. General Policy II-1

B. Maximizing Competition Required in the Competition in Contracting Act (CICA) II-3

C. Workloading Government-Owned Army Ammunition Plants II-4

D. Use of Government and Commercial Facilities II-5

E. Plant Utilization Policy II-6

F. Other Considerations II-7

Section III, Government-Owned Property Within the Ammunition Production Base:

A. Self-Facilitization III-1

B. Filling Equipment Voids and Eliminating Deficiencies III-3

C. Reduction of Government-Owned Property in the Possession of Defense Contractors III-4

Appendix:

A. Acquisition Decision Logic Diagram A-1

Cross Reference Guide to HAC Report 100-410 Questions

Section I, The Ammunition Production Base:

Chapter A, General Policy:

1. Policy: To place primary reliance on private industry for production of military items. The only exception to this policy will be for the production of lethal munitions where the policy has been to avoid substantial investment of private capital in production facilities solely used for the manufacture of items having no civilian use. Facilities for lethal munitions are defined as those facilities used to: manufacture propellants and explosives; load, assemble and pack explosive components and complete rounds of ammunition; and produce lethal chemical munitions.

2. Rationale: The rationale behind this policy includes:

a. There are no private industrial facilities which can be used for or satisfactorily converted to production of propellants, explosives and the loading of ammunition to meet national emergency requirements. Normal business motives do not justify private investments in facilities capable of meeting military emergency requirements under the attendant circumstances of "feast or famine production." Interchangeability of components, flexibility of production to meet tactical needs, control of critical materials and minimization of the effect of strikes are some of the factors which make it more practical as well as desirable for the Army to own these type factories.

b. Of vital concern to the defense effort is the control over location and dispersion of the munitions capability. Due to the fire and explosive hazards of this type of industry and the extensive physical area required by each of the various plants, comparable safety and security measures are not readily available in private industry.

c. American corporations have been reluctant to expand into the lethal munitions fields which are subject to unfavorable public reactions especially during periods of hostility.

Section I, The Ammunition Production Base:

Chapter B, The Mobilization Base:

1. Purpose of the Base: The mobilization production base is that portion of the United States and Canadian Industrial Base needed to support projected wartime needs. This base consists of both Government-owned and commercially-owned manufacturing facilities. Its purpose is to meet emergency ammunition requirements that greatly exceed peacetime requirements and to provide a deterrent force to potential adversaries. The base must be both credible and responsive with sufficient capacity to meet and sustain wartime requirements. It is composed of balanced commercial and Government segments to maintain critical skills and expertise and physical capability. There must be a certain degree of control to ensure that capabilities are not unilaterally terminated and are available when required.

2. Statutory/Regulatory Authorities: The Defense Industrial Reserve Act requires that the Department of Defense (DOD) maintain a nucleus of Government-owned plants and equipment, and maintain an industrial reserve of equipment for emergencies. This is the same Act that requires the private sector to provide plant and equipment, to the maximum extent possible, to support defense production. Defense directives and instructions require the retention of a responsive industrial base. In addition, the Competition in Contracting Act (CICA) of 1984, implemented in 1985, reiterates the need for an industrial base by making it one of only seven exceptions from full and open competition. The Arsenal Act, 10 United States Code 4532, states, "(a) The Secretary of the Army shall have supplies needed for the Department of the Army made in factories or arsenals owned by the United States, so far as those factories or arsenals can make those supplies on an economical basis..." The Comptroller General has interpreted this to include both Government-owned, Government-operated (GOGO) and Government-owned, contractor-operated (GOCO) facilities.

3. Army Policy: The Army's ammunition mobilization production base policy is:

a. Maintain a strong mobilization production base, composed of Government and commercial facilities consistent with available funding.

b. Critical (industrial preparedness planning list (IPPL)) item production is restricted to United States and Canada, as a minimum. Further restrictions are used to protect GOCO, GOGO, and contractor-owned, contractor-operated (COCO) mobilization production base producers, as justified.

c. Multiple sources of supply, consistent with need, are established for competition and security. Self-facilitization will be utilized. Mobilization production base considerations are incorporated early in the development cycle.

4. Actions in Support of Army Policy: The mobilization base will continue to be required for support of surge, mobilization, and sustainability contingencies. To assure that the base will be available and adequate to meet those contingencies, the policies and actions addressed in the following paragraphs will be continued:

a. First, the mobilization base is balanced by analysis of end items and related components, requirements, and capabilities. Planning is conducted to ensure that all components of an end item can be produced. System contractors and prime contractors are required to perform industrial preparedness planning down to the critical component level for Priority One Industrial Preparedness Planning List (IPPL) items.

b. Secondly, reliance is placed upon low cost measures for enlarging the planned production base. Examples include; filling equipment voids, adding additional pieces of equipment and finding new commercial sources of supply. Establishment and maintenance of a mobilization production base will continue to be a high priority. The mobilization production base may be established at a greater level than the peacetime buys warrant to ensure that capacity is available to meet emergency requirements.

c. In addition, the production planning schedule (PPS) contract will be used as a vehicle to identify and retain production base capacity for mobilization planned items. PPS contracting will be the accepted method for establishing industrial preparedness planning (IPP) agreements with contractors. The PPS contracting system establishes a commitment between a contractor and the Government for IPP. The data obtained by planning with industry (critical skills and components, production pacing processes, foreign source equipment and dependency, and commercial substitutes identification) will be used in analyzing the mobilization production base, identifying deficiencies, computing war reserves, and determining shortages to mobilization item requirements. Planning will also serve to eliminate conflicting demands on individual contractors, shorten administrative leadtime and facilitate the distribution of contracts during a national emergency. The contractors will be responsible for the mandatory subtier planning requirement of IPPL Priority One items. PPS contracts will provide the contractors planned producer status and they will be solicited for all acquisitions of their planned items for which competition is restricted to the mobilization base pursuant to an approved justification and approval (J&A) document for which the contractor is eligible. (See Federal Acquisition Regulation (FAR) 19.5 and DOD FAR Supplement (DFARS) 2Q.7003 relative to partial set-asides for small business and labor surplus area concerns.)

d. To ensure that the mobilization production base is available for use and to minimize the possibility of hostile or political interruption of production sources, procurement for critical items and components continue to be restricted to United States and Canadian suppliers. This restriction is limited to items (and related critical components) on the IPPL or planned replacement items for items on the IPPL.

e. Multiple sources of supplies within and outside of the Government are identified. This fosters competition among sources, assures dispersed and alternate sources, and provides a potential for alternative responses to production requirements. Government-owned and commercially-owned facilities for the same item may be required concurrently.

f. Self-facilitization shall be the predominant mode of operation for creating a production base in support of current procurement. We will actively ensure that longterm capability for emergency needs is maintained. Facilitization will be supported by Government funding only where inadequate capability exists and self-facilitization cannot be achieved. Capital investment protection, multiyear procurements, or priced options may be used to provide assurance of cost recovery.

g. Industrial preparedness considerations are incorporated at the earliest stages of research and development (R&D) and integrated during the development of acquisition strategy in order to assure establishment of a responsive peacetime, surge, and mobilization production base. Developers are required to consider industrial preparedness issues as a high priority of their development program. They must identify critical items being replaced and also critical components of end items.

5. Mobilization Procurement Support Committee (MPSC): In furtherance of the above the Army requires the formation of a MPSC at the appropriate major subordinate command level. The MPSC integrates long and short range goals of customer demands, competition, industrial readiness, and fair and reasonable prices. This committee balances efforts to maximize competitive opportunity for private enterprise while at the same time ensuring a responsive surge and mobilization production base and to evaluate the economic considerations involved in enhancements of the mobilization production base.

Section I, The Ammunition Production Base:

Chapter C, Retention of Cadre of Critical Skills for Mobilization:

1. The Army retains a cadre of personnel having critical skills essential for the reactivation and/or operation of mobilization production facilities. Critical skills include, but are not limited to, the following:

a. Top management personnel who have actual experience in operation of similar or identical production processes.

b. Technical personnel required to reactivate or increase output by use of their engineering or analytical skills; e.g., chemical engineers to perform calculations for restart of processes, industrial engineers to review standing operating procedures/job standards and train operators, and metallurgists to manage forged metal product quality control.

c. First line production, quality, safety, and facility engineer supervisory positions.

d. Skilled craftsmen with unique experience that cannot be found in neighboring civilian economy or that cannot be developed and trained within 30 days.

e. Experienced production and quality personnel who have operated the process and can train newly hired employees through both classroom and hands-on training.

2. Each GOGO, GOCO, and planned COCO identifies the skill/craft/discipline necessary for reactivation/operation of facilities during mobilization. In the case of GOCO or COCO facilities, this cadre may include positions and personnel located in the mobilization production facility or elsewhere in the corporate organizational structure.

3. Protection of this cadre of critical skills is a consideration in workloading the GOGOs and GOCOs and/or restricting competition among the COCO base producers. The area of consideration extends to the entire GOGO/GOCO/COCO base; e.g., if like skills are required at two facilities, only those available at one need be protected with just those attributable to uniqueness of the facility protected at the second.

4. Protection of critical skills is a consideration in acquisition strategy decisions related to restrictions of procurement actions to mobilization base or specific producers. The decision/approval documents; e.g., J&As, cite the types of skills being protected by the restriction. Also included is a statement addressing why that (those) skill(s) is/are critical.

Section I, The Ammunition Production Base:

Chapter D, Continuation, Deactivation, Reactivation, and Disposal:

1. The Army continues to expand and/or contract the peacetime base according to the dictates of the DOD ammunition-related needs, as reflected in acquisition strategies. Emphasis is placed on maintenance of a mobilization base within this structure. Existing facilities are retained in an active status if they are essential to national security or satisfy a current requirement, remain economical and can operate within resources available.

2. Active facilities are deactivated when production requirements are insufficient to support economical unit costs and insufficient to support efficient use of resources unless identified as a critical producer. Continued viability of a critical producer is supported through use of directed procurements, supplemental capabilities, maintenance funds, etc., and other mechanisms to protect process skills and unique capability.

3. Existing facilities are retained in an inactive status if they satisfy a legitimate mobilization requirement. These facilities must be in an immediate-use posture, or we must be able to make them responsive on an economical basis. Those existing Government-owned facilities required for the mobilization base, but for which no immediate need exists, are reported available in accordance with the Army's multiple use program, for outgranting to other Government/non-Government organizations. Such action fosters maintaining real estate in the highest state of readiness at the lowest cost to the Army. This would involve real estate outgrants; i.e., leases, licenses, permits, etc.

4. Inactive facilities are reactivated when procurements are sufficient to support economical unit costs considering reactivation costs. The procurements must be structured so that reactivation can be accomplished for a sufficient period of time to support efficient use of resources. Reactivation may also be necessary if the capability is unique and the facility is the sole source of supply. The acquisition profile must be structured to make the most efficient use of facilities while activated, and avoid unnecessary deactivation and reactivation of the facilities.

5. Facilities are analyzed to determine if they can be economically converted to support new items, or to support items where shortfalls exist in current mobilization capacity. Facilities undergo disposal when they no longer support a projected peacetime or mobilization demand and are excess to Government needs.

Section II, Procurement:

Chapter A, General Policy:

1. The present system of procurement of ammunition is based upon a division of functions in the production or processing of ammunition components between facilities which are privately owned and operated and others which are Government-owned and contractor operated. The Government-owned ammunition plants produce lethal munition to include: small arms ammunition, propellants and explosives, process heavy caliber ammunition for load, assemble, pack and shipment of completed rounds to storage areas. Metal parts, including fuzes, cartridge cases, and projectiles, are mainly produced by private industry. The metal parts are shipped to Government-owned loading plants for loading, assembling, packing, and shipping. This policy is summarized below:

a. To the maximum extent practicable, the reliance for production of military items will be placed on private industry. In the case of lethal munitions items, the policy is against substantial investment of private capital in productive resources, the sole use of which is in the manufacture of such items having no civilian use.

b. Two methods to procure ammunition are: (1) break-out of components with multiple contracts for components and load, assemble and pack, and (2) systems contracts in which the contractor is required to buy the propellant and explosives, chemical agents and load, assemble and pack from Government-owned plants.

c. Government ownership of ammunition production and loading facilities should be maintained in those areas where no suitable or adaptable private facilities exist. Private industry competitively selected will be relied on for operation of these facilities.

d. Within the limits of available appropriations these facilities should be modernized and enlarged to the extent necessary, to provide a mobilization production base capable of supporting approved mobilization and strategic plans for the Department of Defense.

2. This policy is based on the following facts:

a. Experience in World War II and the Korean and Vietnam conflicts has shown that there are no private industrial facilities which can be used for, or converted to, production of propellants and explosives, certain military chemical agents, or ammunition loading.

b. No private industrial capacity is now in existence that could suffice as, or contribute to, a mobilization production base capable of meeting Army requirements for propellants and explosives and ammunition loading in a future war.

c. Normal business practice does not justify private investment in single purpose military propellants and explosives and ammunition loading plants. Conceivably, Government incentives might induce private industry to make such investment; however, any type of incentive could result in a monopolistic position of the incentivized enterprises. Government-owned plants avoid this potential situation as the operating contractors are selected from among all interested industrial firms by a competitive process based on factors of quality of performance and cost.

3. In the light of the above considerations, the most desirable arrangement, is one which essentially follows the now existing policy: procurement of metal parts and components from private industry; production of propellants and explosives as well as loading and assembly of finished rounds in Government-owned but contractor operated plants. Based on historical experience, this system combines optimum defense preparedness with the maximum contribution of inventive ingenuity and dynamic force inherent in private industry.

Section II, Procurement:

Chapter B, Maximizing Competition as Required in the Competition in Contracting Act (CICA):

1. Competition within the United States/Canadian industrial base is maximized to the fullest extent possible except when the situation exists where specific suppliers must be protected and there is convincing evidence for such a restriction. These situations include:

a. Keeping critical Government and commercial facilities in business.

b. Keeping unique production capabilities, tooling, and equipment.

c. Protecting critical skills.

d. Avoiding interruption of the delivery of a critical item.

2. The suppliers capable of producing materials critical to national defense and having agreements with the Government to maintain production capacity for a limited amount of time are considered as part of the mobilization production base. It is the Army policy that quantities over and above their mobilization 1-8-5 capability that are necessary to maintain the existing base will be competed among the United States/Canadian industrial base. The ability to expand the base through competition is minimized during times of shrinking programs. The goal is to identify the base and maintain that base for critical items. If there is not enough work for existing producers, then the Army will not increase the number of producers. Competition is pursued to the maximum extent possible within the mobilization base and critical producer restrictions. The acquisition decision logic is depicted in Appendix A.

3. Mobilization planning is conducted for those items which are critical to the national defense. Contract awards for all mobilization planned items are restricted to United States/Canadian production sources. This includes flowdown restriction of their critical components down to, but not including, raw materials. An exception to this restriction may be authorized for critical components for which there is not an adequate United States/Canadian production base to meet mobilization demands. Normally, foreign producers are not considered for critical components unless otherwise authorized.

Section II, Procurement:

Chapter C, Workloading Government-Owned Army Ammunition Plants (AAPs):

1. Workloading of the Government-owned base includes a decision approval process for each acquisition item. Current acquisitions are reviewed and identified on an individual basis to allocate workload to the Government-owned plants. Some acquisitions are directed to the Government-owned sector based on need for retention of expertise, only available source, unique facilities or required delivery time. Additional workload to retain the Government base at a minimum level of capacity may also be directed. The remainder of the requirement is reserved for the commercial segment and may be fully competed, restricted to United States and Canada, restricted to the mobilization base, set aside for small business or procured sole source. The acquisition decision logic is depicted in Appendix A.

2. The Government-owned ammunition plants are workloaded based on good business sense analysis. This means that in cases where GOCOs/GOGOs do not have unique capabilities, a decision to place the work there is based on a combination of factors to include cost, delivery, quantities to be produced, and readiness support needs such as skilled personnel, equipment readiness, and subcomponent delivery/structure.

3. Workloading of the Government-owned ammunition plants is accomplished to stabilize the workforce in a reasonable manner to prevent major yearly fluctuations. The goal is to maintain a stable workforce at GOCOs/GOGOs. This allows for the retention of in-house capability and expertise, and requires a concentrated coordinated effort to integrate various factors such as systems contracting, third party contracts, and CICA efforts.

4. Workloading efforts concentrate on items not readily available in the commercial sector. Government facilities augment commercial industry taking responsibility for those items which are not generally commercially adaptable and industry is not willing to facilitize and maintain. As the need for production capability for new items is identified, reliance is placed on the commercial sector for metal parts, assemblies, and electronics, with self-facilitization as a goal. The Government sector continues to be the prime producer of propellants, explosives, and lethal munitions load, assemble, and pack (LAP).

5. Acquisition strategies to restrict critical items to United States/Canada may result in use of known and proven production capabilities (GOCO/GOGO base) to meet deliveries. Systems contracting solicitations include lists of GOCO facilities and their production capability to encourage their use through third party contracts to maintain workload and keep a minimum level warm base.

Section II, Procurement:

Chapter D, Use of Government and Commercial Facilities:

1. The decision as to which facility is utilized when dual capability exists is based on factors such as capacity, cost, ability to meet deliveries, skills retention, maintaining critical producers and workload balance. In general, metal parts are produced in the COCO sector. A minimum capability is maintained in the Government-owned facilities to supplement industry capability and provide surge capability during mobilization.

2. As previously stated, IPPL items are restricted to United States and Canadian sources. Non-IPPL items are normally competed using full and open competition, although other strategies may be more appropriate; i.e., small business set-asides. Critical Government and commercial facilities receive first priority in allocation of support such as directed procurements and other means to keep the source viable. GOCOs/GOGOs are workloaded to provide the capabilities not obtainable from the COCO sector. Generally, this GOCO/GOGO workloading includes end item LAP and production of propellants, explosives, and lethal chemicals. The acquisition decision logic is depicted in Appendix A.

3. The base is balanced between Government and commercial producers to assure a cadre of expertise and physical capability. There must be a certain degree of control to ensure that capabilities are not unilaterally terminated and are available when required. Development and use of the base must be carefully orchestrated to encourage participation of commercial industry. Government augments commercial industry taking its proper segment of responsibility, and providing capability for those items which commercial industry is not willing to facilitize and/or maintain the capability.

Section II, Procurement:

Chapter E, Plant Utilization Policy:

1. To encourage utilization of the GOCO AAPs, the Army Plant Utilization Policy was developed. The Army directed the United States Army Armament, Munitions and Chemical Command (AMCCOM) to develop internal procedures for monitoring all work undertaken as a result of this policy. This policy is implemented by AMCCOM Regulation 210-1, Plant Utilization Policy. This policy allows for direct contracting and subcontracting with the operating contractor of a GOCO by both Government activities and private industry, with prior AMCCOM approval.

2. The AMCCOM Quick Reaction Team reviews third party work requests prior to issuance of a formal authorization letter for use of the GOCO facilities/equipment. Use of the command's facilities and equipment for DOD third party work is on an asset-use/rent-free basis. Use of GOCO facilities/equipment for non-DOD work results in an asset-use/rental charge being assessed against and paid by the operating contractor. All work accepted under the Plant Utilization Policy must be performed on a non-interference basis, unless otherwise directed by AMCCOM. Non-interference is defined as when any area of performance related to third party contractor's work/effort would not hinder the mission of the AAP regarding AMCCOM directed work, unless otherwise directed or approved by AMCCOM. All third party work is monitored by the Government contracting officer's representative staff to assure they absorb their fair share of all incurred costs. Contractors are required to maintain or improve facilities/equipment utilized for third party work.

3. Third party work may be postponed or terminated by AMCCOM if it interferes with assigned mobilization production unless the item being produced is planned for mobilization production at that facility. However, the plant commander has the authority to postpone or terminate any third party work if the operating contractor is in violation of any safety, security, or environmental regulations/policies.

Section II, Procurement:

Chapter F, Other Considerations:

1. North Atlantic Treaty Organization (NATO) Cooperative Procurement of Munitions Program - Defense policy is to cooperate with our NATO allies in armament programs in general, and in consolidated procurement of munitions in particular:

a. The NATO Maintenance and Supply Agency (NAMSA), the United States, and 12 other NATO nations have entered into an arrangement for consolidated procurement of ammunition. Consolidated procurements yeild economies of scale and promote standardization and interoperability. The U.S. has entered into this initiative under the terms of Section 27 of the Arms Export Control Act. The Army the lead in this initiative for the Department of Defense. Initial efforts have focused on 155mm munition items, but other types are being considered.

b. The Army supports participation in consolidated procurements made by NAMSA. However, all nations, including the United States, are protective of their production base capacity and capabilities. To this end, the United States is only submitting quantities for competition that are above a minimum sustaining rate and destined for stockage in Europe. This program does offer the opportunity for increased business for the United States base. This can aid in the retention of ammunition production base expertise. The names of the operating contractors of the GOCO, GOGO, and COCO ammunition facilities are provided to NAMSA as solicitation sources for procurement of ammunition listed on the nation's participating purchase requirements.

c. The NAMSA ammunition buy procedures are exclusive and not a part of foreign military sales procedures; although, all aspects of the Arms Export Control Act apply and any waiver of charges come under the purview of Defense Security Assistance Agency.

d. Preliminary indications are that cost savings, standardization and interoperability are achievable through cooperative procurement of munitions.

2. Off-Shore Procurement as it Relates to the Production Base:

a. Title 10 of United States Code, Section 2304 (10 USC 2304) states "Except as provided in subsections (b), (c), and (g) and except in the case of procurement procedures otherwise expressly authorized by statute, the head of an agency in conducting a procurement for property or services shall obtain full and open competition ...." Ammunition procurements have been normally restricted to US/Canadian producers in accordance with one of the exceptions of this law, 10 USC 2304 (3)(c). This exception authorizes restricting competition in order to maintain a domestic manufacturing base for items needed in case of national emergency or to achieve industrial mobilization.

b. There are specific instances where ammunition is procured off-shore, i.e. when our minimum sustaining rate cannot be met domestically, international agreements, and coproduction arrangements. However, it is to the ammunition production base's advantage that these producers be encouraged to facilitize within the United States/Canada. This will assure development of reliable on-shore sources of supply.

3. Army Environmental Program: The Army Environmental Program relates to the protection and preservation of environmental quality and is a matter of high priority. All elements of the production base ensure that the environmental consequences of their actions and programs are assessed and considered by them so as to carry out the Army's mission with minimum adverse effects on the human environment. Further, production base elements must comply with all environmental regulations/requirements and be cognizant of their responsibilities with regard to all aspects of the Army Environmental Program.

Section III, Government-Owned Property Within the Ammunition Production Base:

Chapter A, Self-Facilitization:

1. Government policy, stated at FAR 45.302-1, is that "Contractors shall furnish all facilities required for performing Government contracts except as provided in this subsection." Accordingly, commercial industry investment in production facilities to satisfy defense requirements is encouraged. Contractor investment is permissible, where the equipment is severable by nature, at Government-owned plants. Known methods for providing assurance of contractor cost recovery are multiyear procurements, priced options, and capital investment protection. Cost recovery methods must be considered during planning, programming, and budget cycles. Requests for capital investment protection will be processed on a case-by-case basis.

2. Maximum use of generic industrial plant equipment is encouraged to achieve flexible, multipurpose use over a longer term and wider range of needs, even though some of the benefits associated with dedicated production lines may be lost.

3. The exceptions to this policy are:

a. Lethal munitions manufacturing which include chemical munitions, propellant and explosive manufacturing, and LAP operations.

b. Government certification that private financing of the industrial facilities was sought but was not available, or that private financing was determined not to be advantageous to the Government, and the defense contract cannot be accomplished without Government-owned industrial facilities being provided.

4. The act of seeking private financing will be attempted by use of market survey techniques and, if inconclusive, through issuance of formal solicitations requiring self-facilitization. Certification of non-availability of private facilities investment in lieu of government is required as part of the facilities project approval document by program/project managers and other Government approving officials.

5. Self-facilitization is the responsibility of the developing contractor, as well as follow-on production contractors. Directing prime contractors to utilize a specific portion of the Government-owned industrial base can, in limited instances, be done.

6. As a result of this policy, the following must be considered: Self-facilitization will require sharing of facility costs among all customers. It is unlikely that contractors will build surge or mobilization capacity as provided under Government ownership, as facilities will probably not be built to 1-8-5 levels. PPS contracts will be utilized to gain a commitment to provide the necessary capacity in the event mobilization occurs. Delayed response time could be encountered while equipment/facilities are being modified from whatever the contractor is currently producing on the equipment to the mobilization rate and designated item. In certain instances it may be advantageous for the Government to combine Government investment with contractor investment to achieve larger sizing or direct the retention of the capacity to provide surge/mobilization capability; but such techniques are anticipated to have extremely limited applicability in the absence of funding.

Section III, Government-Owned Property Within the Ammunition Production Base:

Chapter B, Filling Equipment Voids and Eliminating Deficiencies:

1. Plant equipment packages (PEPs) are upgraded by filling voids and replacing deficient equipment within the available resources. Longterm goals are to maintain and upgrade those essential PEPs which are required for mobilization. When PEPs are not longer essential, they are discontinued. Existing equipment is used to the maximum extent to fill voids and replace deficient equipment. Based on Under Secretary of Defense for Acquisition property policy, PEPs are to be reduced to an essential minimum by 1989 and that minimum is to be upgraded to responsive condition within budget constraits.

2. Equipment voids and deficiencies which can only be satisfied by the purchase of new equipment are deferred for action until mobilization day (M-DAY) if the void or deficiency is not on the critical reactivation path. Reutilization of existing equipment will be maximized to satisfy both pre-M-DAY and post-M-DAY voids and deficiencies with pre-M-DAY having the highest priority. Equipment voids are filled where possible with acceptable equipment from the Defense Industrial Plant Equipment Center general reserve or by acceptable equipment declared excess from other PEPs. Reutilization of existing resources is pursued prior to investment in new equipment.

3. Deficiencies required to be corrected pre-M-DAY in order to meet post-M-DAY required deliveries are programmed within available resources. The remaining deficiencies are prioritized for mobilization deficiency funding.

4. Commercial industry is encouraged to self-invest in PEPs when equipment is used at a COCO facility.

5. Self investment has the potential for leading to reduced capacity to meet mobilization. With government investment, facilities are planned to meet peacetime requirements on a 1-8-5 shift basis, which provides for a built-in surge and mobilization capacity, i.e. on a 3-8-5 or 3-8-7 shift basis. Industry can choose to invest to meet peacetime requirements on multiple shifts, thus reducing our capacity to surge. This can be mimimized by either (1) sharing the added cost with industry to build a facility to meet the requirement on a 1-8-5 and/or (2) entering into a Production Planning Schedule (PPS) contract which commits the contractor to retain established capacity.

Section III, Government-Owned Property Within the Ammunition Production Base:

Chapter C, Reduction of Government-Owned Property in the Possession of Defense Contractors:

1. The DOD policy is to reduce ownership of Government-furnished property in the possession of defense contractors. The Army goals for reducing Government ownership are 5 percent in FY 88 and an additional 2 percent per year FY 89 - FY 92.

2. It is Army policy to strictly limit funding for the ownership of industrial facilities, equipment, and material. Actions will be continued to dispose of unneeded Government-owned equipment. Commercial industry is encouraged to invest in equipment needed to meet hardware contracts. Direct funding will not be provided for COCO modernization of equipment or facilities unless absolutely essential and the criteria of the Federal Acquisition Regulation (FAR) are fully met.

3. The DOD policy is to identify essential production facilities (GOCOs) and of those, the ones that DOD does not need to own. GOCOs where ownership is not required are to be sold to the private sector through negotiated sale. This is known as the "excess to ownership" policy whereby DoD divests itself of GOCO ownership to the maximum extent possible. The Army has initiated this process by taking preliminary steps to identify those facilities considered excess to ownership and developing strategies to make them attractive to prospective bidders. Inactive government owned property to include GOCOs will also be reviewed and a determination for the need to retain or dispose of them will be made. The Army has identified plants that are "excess to need" and is taking action to dispose of these GOCOs.

4. It is noted that the Army is currently trying to obtain changes necessary to accomplish sale of selected non-excess equipment to contractors. To date we have only disposed of equipment that was considered excess to our requirements. If necessary changes are approved, it would then be able to sell not only excess equipment but also equipment still required to meet peacetime or mobilization requirements. In this case the Army would still seek to retain that capacity through the use of a Production Planning Schedule (PPS) contract.

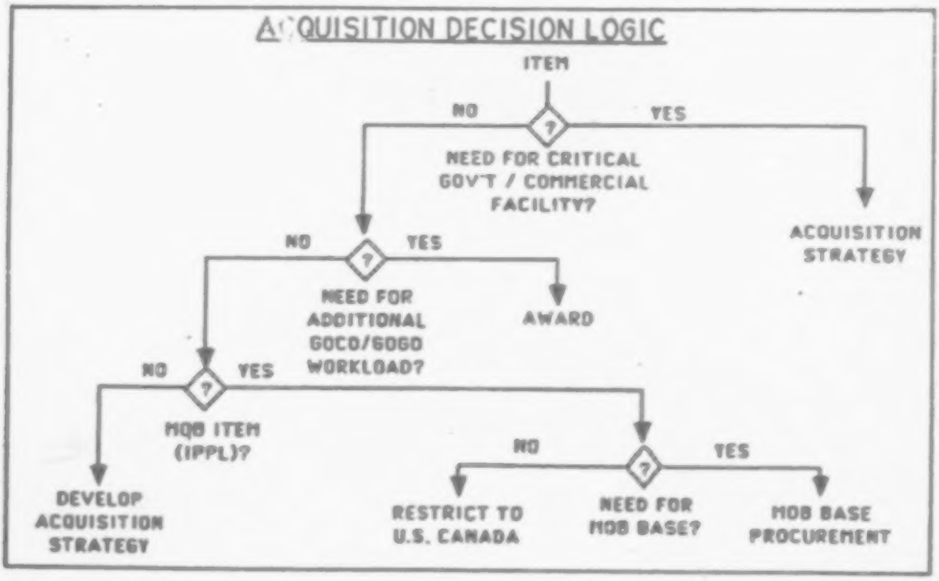
APPENDIX A

ACQUISITION DECISION LOGIC DIAGRAM

1. Critical facility needs for workload are identified first. This may be either a Government or commercially-owned facility.

2. Items in excess of those needed to support a critical facility are looked at in sequence to see if they are needed for Government-owned facility workload. Those not needed are reviewed to determine if this item is a critical mobilization IPPL item.

3. IPPL items are reviewed for need to support the mobilization base and at a minimum the procurement is restricted to United States and Canadian producers. Non-IPPL items are normally competed, although other strategies may be more appropriate.


ACQUISITION DECISION LOGIC
ITEM
NO
YES
?
NEED FOR CRITICAL GOV'T / COMMERCIAL FACILITY?
ACQUISITION STRATEGY
NO
YES
?
NEED FOR ADDITIONAL GOCO/GOGO WORKLOAD?
AWARD
NO
YES
?
MOB ITEM (IPPL)?
DEVELOP ACQUISITION STRATEGY
NO
YES
?
RESTRICT TO U.S. CANADA
NEED FOR MOB BASE?
MOB BASE PROCUREMENT

CROSS-REFERENCE GUIDE
to
CONGRESSIONAL AMMUNITION BASE QUESTIONS
HAC REPORT 100-410

QUESTIONS	RESPONSES
1. How is the new self facilitization policy being applied to the ammunition production base — GOCO, GOGO, and COCO — and how are mobilization production requirements addressed in the implementation of such a policy?	Page III-1,2
2. What is the policy in the use of GOCO, GOGO, and COCO facilities for the production of ammunition and components when similar capabilities are available in more than one type of facility?	Page II-5
3. What is the policy on "workloading" of ammunition plants?	Page II-4
4. How is competition maximized in ammunition procurement given "workloading" and the desire to maintain certain producers as a "warm base"?	Page II-3
5. What is the long-term plan and policy for continuation, disposal, reactivation, and deactivation of plants in the GOCO and COCO production base?	Page I-7
6. Given the huge number of equipment voids and other deficiencies in the laid away mobilization base, what is the long- term strategy for addressing this situation?	Page III-3
7. How does the proposal to initiate common NATO ammunition procurement fit into the overall production base policy?	Page II-7
8. What is the policy on offshore procurement, as it relates specifically to the production base?	Page II-7,8

MAINTAINING THE AMMUNITION PRODUCTION BASE

Question. Section 733 of the fiscal year 1989 Authorization Act required the Department of Defense to study alternatives to the current method of funding the maintenance of the ammunition production base and provide recommendations. Last December, the Committee received a letter from Assistant Secretary Sculley stating that the report would be submitted in January. It is now April. Where is the report?

Answer. The report is currently under review at Office of the Secretary of Defense. The lead office is the Deputy Under Secretary of Defense for Industrial and International Programs, which is under the Office of the Under Secretary of Defense for Acquisition.

Question. What alternatives are being considered?

Answer. The Army study of alternative funding for the ammunition production base concluded that the major funding problem is in obtaining the approximately $30–$50 million per year necessary to maintain the inactive base. OSD is considering the alternative, proposed by Army, to move this funding from the Operations and Maintenance, Army (OMA) appropriation to the Procurement Ammunition, Army (PAA) appropriation. The Deputy Chief of Staff for Ammunition is the appropriation manager for PAA, and he is also ultimately responsible for maintenance of the base. This action will provide the stewardship necessary to ensure that the maintenance requirements are identified and funded consistent with other ammunition priorities.

OSD is also considering, as an alternative approach, transferring the entire OMA Industrial Preparedness Operations account to the Deputy Chief of Staff for Ammunition, but keeping it in the OMA appropriation. Rationale for this alternative is that the traditional DOD approach is to use the OMA appropriation for maintenance of real property and equipment.

OSD will provide a report to you in June 1989.

[CLERK'S NOTE.—As of September 13, 1989, the report had not been received.]

Question. Will the report address maintenance of contractor-owned facilities as well as government-owned facilities?

Answer. Yes. Both types of facilities were considered in the study. They are currently funded by the OMA appropriation Industrial Preparedness Operations account.

Question. Will the report provide a plan for solving this multi-billion dollar problem?

Answer. The report will provide an alternative to the current method of funding the maintenance of the inactive ammunition base. However, this is not considered a multi-billion dollar problem. Funds required to provide adequate maintenance of the inactive base are in the $30–$50 million range.

RDX EXPLOSIVE MANUFACTURING FACILITY

Question. In fiscal years 1988 and 1989 Congress appropriated a total of $335 million for the construction of a new facility to produce RDX explosive at the Louisiana Army Ammunition Plant. What is the status of this plant and the current milestones?

Answer. Under the original RDX strategy, we sought to award a contract to a single contractor to design, construct, document, provision, and prove out the facility and train our operators under a fixed price (Incentive) contract. The Army issued the request for proposal for this turn key plant on 26 November 1988. Best and final proposals were received on 21 April 1989. The proposals received for the current solicitation were considered unacceptable because of material exceptions taken by the bidders to the terms and conditions of the solicitation. The proposed exceptions were so substantial that acceptance of them required a new solicitation. The Source Selection Advisory Council met in conference on 15 May 1989. The Source Selection Authority outlined changes to the original strategy that increases the risk borne by the government and is expected to attract acceptable proposals.

Major Milestones are:

Issue New Request for Proposals	Jun 89
Down-selection of Bidders	Sep 89
Selection of System Contractor	Aug 90
Award Contract	Sep 90

Question. The Army's estimated cost of $335 million for this plant included two acid plants, multi-product finishing facilities, a steam plant and other facilities. Do you currently expect to get all of these facilities for the $335 which has been appropriated? If not, how much of a cost overrun are we talking about?

Answer. The acquisition concept for the project changed since the funding profile was first estimated in 1983. The price originally quoted by the Army will likely increase because of inflation, and because multi-products were not included in the original estimate. Additional funds may be required to cover the system contractor's added risk in assuming full responsibility for design through prove-out, training and certification at a fixed price. The full dynamics of competition in the acquisition of the plant will allow the marketplace to determine the lowest price for the plant. The Army will base subsequent programmatic decisions on this pricing and will coordinate requirements with the Congress.

It is our current estimate that the full acquisition of the most comprehensive system including all multi-product options, utilities, acid facilities, and support facilities may range between $415.0 to $487.0 million. The full system may, therefore, require appropriations and authorizations between $80.0 to $152.0 million above the current program of $335.0 million. We are confident, though, that a basic facility to manufacture Composition A5 explosives can be acquired within the current program mark of $335.0 million.

Question. What is the current procurement strategy for this plant and what changes have been made since last year?

Answer. Under the original RDX strategy, we sought to award a contract to a single contractor to design, construct, document, provision, and prove out the facility and train our operators under a fixed price (Incentive) contract. The proposals received for the current solicitation were considered unacceptable because of material exceptions taken by the bidders to the terms and conditions of the solicitation. The proposed exceptions were so substantial that acceptance of them required a new solicitation strategy. The Source Selection Advisory Council met in conference on 15 May 1989. The Source Selection Authority outlined changes to the original strategy that increase the risk borne by the government and is expected to attract acceptable proposals. Paramount to this revised strategy is maintaining the System Contractor's (SC) responsibility for designing, constructing and successful operating the RDX facility. Central to this concept is the mandate that the SC remain fully responsible for the selection of the process, its performance to the standards outlined in the contract and that the SC complete any modifications to the facility necessary to achieve the performance standards before the government considers the contract fully satisfied. The revised strategy maintains provisions that protect the government from the delivery of a facility that will not perform, yet makes the contract more attractive by increasing the government's risk. The new strategy also retains the incentive arrangement recommended for consideration by Congress in the FY89 Appropriations Conference Report.

Question. Who are the potential bidders?

Answer. Nearly one hundred firms attended the pre-bidder's conference held in Shreveport, Louisiana, on 15 December 1988. We believed that a full response to the solicitation would consist of no more than 8 consortiums because of the complexity of the project and the qualifications required of the bidders. We received less than that number. The names and number of bidders are considered procurement sensitive and cannot be revealed until the entire solicitation process is complete.

Question. What is the Army doing to control the costs and avoid a repeat of the miserable experience at the Mississippi Army Ammunition Plant?

Answer. The Army plan is to award the contract to a single system contractor who will be fully responsible for designing, constructing, provisioning with spare parts and essential materials, writing operating procedures, training operating personnel, and demonstrating the rate and capacity of the facility under a fixed price arrangement. To assure the system contractor's performance and avoid the difficulties experienced at Mississippi Army Ammunition Plant the following actions have been taken:

a. A fixed price incentive contract will be used in conjunction with a single system contractor who will have responsibility for the full integration of designing, constructing and demonstrating the operability of the plant.

b. The contractor must choose a process that has a demonstrated success record with full scale operations.

c. The system contractor will post a performance bond that is equal to 25% of the value of the contract. This will help assure a competent contractor is awarded the contract and that the contractor will not default in performing in accordance with the terms of the contract.

d. The Government will retain 10% of progress payments.

e. The Army will utilize best available government talent to oversee the project. The Army will also employ Government Support Contractor to augment its technical staff where skills are best available from industry.

Question. Once the plant is completed and proven-out, will the Army buy its peacetime requirement from it, from the Holston plant which now produces it, or from both?

Answer. The facility being built at Louisiana Army Ammunition Plant will help satisfy a mobilization deficiency for RDX based explosives. The Army currently plans to construct, prove out, and rate test the facility. It will then be preserved and maintained as an inactive facility as part of the mobilization base.

HMX MANUFACTURING FACILITY

Question. The budget includes $12 million for the second year of design funding for a facility to manufacture HMX propellant. The plan is to use a new, less expensive process called Musall. A pilot plant to test the MUSALL process is at the Longhorn Army Ammunition Plant in Texas. In fiscal year 1988 hearings we were told that the pilot plant would be proven-out by April 1989, this month. What is the status of the pilot plant?

Answer. The pilot plant was originally scheduled for completion (not proven out) by April 1989. It became necessary to slip the completion by three months to July 1989 in order to accommodate necessary "no-cost" changes to the acid recovery system. Presently, the pilot plant is about 90 percent finished with all but the final nitration and pack out areas completely installed. Work on these final areas is progressing rapidly and completion is expected on or before the target completion date of July 1989.

Prove out has already begun (initial testing began in March) and continues to progress as portions of the process are completed. This is made possible because each portion can operate by itself, independent of the other portions. Completion of prove out is expected by original date of December 1989.

Question. When will testing start at the pilot plant and over what period of time will it take place?

Answer. Prove out testing began in March 1989 and will continue through December 1989. This will be followed by a demonstration test (i.e. integrated testing of all process elements at the same time) which is expected to take about three months to complete. The pilot plant will then be available on an "as needed" basis for facility design support.

Question. At what point in the testing will you know for sure that the MUSALL approach is more cost-effective than the current Bachmann process?

Answer. By October 1989 we expect to have sufficient prove out data to accurately assess the economics of MUSALL vs Bachmann.

Question. What are the milestones for the full scale plant?

Answer. MUSALL facility milestones are as follows:

Award Government Support Contract (GSC)	Sep 89
Complete concept design	Apr 91
Complete RFP for System Contract (SC)	Apr 91
Award System Contract	Sep 91
Complete final design	Mar 92
Start construction	Apr 92
Complete construction	Jun 96
Begin prove out	Jan 96
Finish prove out	Sep 96

Question. Where will it be located?

Answer. HQ AMCCOM recommended Longhorn AAP as the site for the MUSALL production facility.

Question. What is the acquisition strategy?

Answer. The MUSALL production facility will employ the Government Support Contractor (GSC)/System Contractor (SC) acquisition strategy. The GSC will assist the Government in preparing preliminary designs for all non "MUSALL-specific" process, utility and support areas. He will then help to meld this information with the "MUSALL-specific" process designs provided by Morton Thiokol into an RFP for a follow on SC contract. The SC will then complete all designs, construct the facility, prove it out and train operators.

The GSC will be awarded on a cost plus basis. SC design and installation will be accomplished on a fixed price basis. SC prove out and training will, however, be done on a cost plus basis to allow for the fact that all MUSALL technology and experience lies solely in the Government sector. Hence the Government must assume responsibility for the "MUSALL-specific" portions.

Question. The Army has estimated the total cost of the full scale plant would be $387.8 million. The current seven year design, construction and prove-out profile shows total costs of $431 million. What accounts for this increase?

Answer. The MUSALL facility funding profile is as follows:

FUNDING

[In millions of dollars]

	Fiscal years—							Total
	1989	1990	1991	1992	1993	1994	1995	
Design	13	12	13					38
Construction			64	110	100	75		349
Prove out							41	41
Grand total								428

The cost of the facility (less prove out) is $387 million. When prove out is added, the overall facility program totals $428 million. Any differences between these numbers and those cited in the question are attributable to changing inflation indices.

Question. Why are design efforts stretched over 3 years?

Answer. The MUSALL facility is a "first-of-a-kind" plant employing new and innovative technology. The three year design cycle was selected to assure that adequate time is provided for interfacing the new technology with "off-the-shelf" process equipment manufacturers and vendors.

Question. What is the obligation status and plan for the $13 million in design funding provided last year?

Answer. The FY 1989 design funds ($13 million) are being obligated as follows:

$600 thousand to Lawrence Livermore for process design engineering support on the electrolytic cell. Funding Status—Obligated

$500 thousand to ARDEC for facilities and explosives engineering and technical support. Funding Status—Obligated

$1,500 thousand to the Corps of Engineers for their In-house support in the GSC solicitation & Award processes. Funding Status—Obligated

$500 thousand to CRDEC for preparation of the environmental documentation. Funding Status—Funds have been provided to CRDEC. Obligation is expected to occur in July when CRDEC awards the environmental efforts to private industry.

$1,100 to Morton Thiokol at Longhorn AAP for technology transfer of "MUSALL-specific" information to the GSC. Funding Status—Negotiation of statement of work nearing completion.

$2,500 thousand to Morton Thiokol for design of the "MUSALL-specific" portions of the process. Funding Status—Anticipate award/obligation by September 1989.

$6,300 thousand to the Corps of Engineers to the GSC. Funding Status—Anticipate award by 30 September 1989.

Question. What specific design tasks will be undertaken in 1989, 1990, and 1991 and how much of the 1991 funding is for design versus construction?

Answer. A Summary of design efforts is as follows:

FY 1989—Environmental documentation. Concept designs for all process, utility and support areas.

FY 1990—Final designs for "MUSALL-specific" process areas. Completion of RFP for System Contract.

FY 1991—Completion of final designs for all process, utility and support areas.

$77 million is planned for the FY 1991 MUSALL facility program. $13 million will be used for design and $64 million for construction.

AT-4 ANTIARMOR ROCKET

Question. What is the authorized acquisition objective for AT-4 and how many have been funded to date?

Answer. The authorized acquisition objective for the AT-4 is 447,000. Defense Guidance is 433,000. Quantities funded to date follows:

Fiscal years:	*Amounts*
1985	55,000
1986	81,000
1987	69,000
1988	68,000
1989	86,000
1990	66,000
Total	425,400

Question. Do you foresee procuring additional AT-4's or M-72's in the future as peacetime training consumption draws down the inventory.

Answer. Additional AT-4 procurement may be required to offset peacetime training consumption. With the completion of the FY 1990 program deliveries, the Army will have 360,000 weapons in inventory. The annual peacetime training requirement is 12,000 weapons. Buys beyond FY 1990 may be required depending on dollar availability and priority. If so, they will be planned in conjunction with other military Services to ensure economies of scale.

Question. What will it cost to restart AT-4 production once the line has been laid away?

Answer. There are no plans to layaway the AT-4 production line. Although there are no Army buys programmed beyond FY 1990 there may be additional requirements in the future to offset training losses. The other military Services have additional buys planned and the Army is working with the contractor to determine how best to meet these requirements. If the AT-4 production line were to be laid away, the Army would propose financing the layaway under the Layaway of Industrial Facilities Line, Activity II, Procurement of Ammunition, Army.

XM913 105MM ARTILLERY AMMUNITION

Question. The budget includes $15.9 million for the initial procurement of 27,000 XM913 105mm High Explosive Rocket Assisted projectile. This projectile is to be used with the new M119 105mm light howitzer. Late last year, testing on the XM913 revealed a critical design failure in the projectile's electronic timer delay. Please explain this problem and what you are doing to fix it?

Answer. Erratic ignition delay caused poor range precision which did not meet ROC requirements. The fix is to revert back to the pyrotechnic delay which was previously used in 105mm and 155mm Rocket Assisted Projectiles (RAP) ammunition.

Question. What are the performance and cost differences between the electronic and the pyrotechnic timer delay? Will the use of the pyrotechnic timer delay affect the ability of the XM913 to meet all Army requirements, including range?

Answer. There is no meaningful performance or cost difference between the two timer delays. The pyrotechnic delay will meet all the Army ROC requirements. The choice of pyrotechnic delay will not effect the maximum range capability of the round.

Question. Please explain the instability and blast overpressure problem with the M119 howitzer when firing the XM913 with the M200 propelling charge.

Answer. The stability at angles greater than 800 mils is a systemic characteristic of M119 howitzer. Due to its light weigh requirement, any design changes would adversely affect its transportability. The required range for the cartridge can be met at 800 mils elevation. The blast overpressure with the M200 charge is not unique to the XM913 cartridge but is representative of most artillery firing top charge. This is addressed on an individual system basis and has been addressed by the Surgeon General's Office. Sufficient ear protection must be worn by troops firing the M119 and this is adequately covered in the field technical manual.

Question. What other problems have been found in testing the XM913?

Answer. None. The ignition delay problem which was addressed (question 1) above is the only unique technical problem experienced by the XM913.

Question. What are the current testing and other program milestones for the XM913.

Answer. We plan to complete Technical Test II in January 90 and type classify in March 1990.

Question. What is the procurement strategy for the XM913 and where will the various components be produced?

Answer. All the components of the XM913 will be competitively procured but restricted to the U.S. and Canadian production base.

Question. Given the technical problems with the XM913 and the delivery delays with the M119 howitzer, why should initial procurement not be deferred until fiscal year 1991?

Answer. All the current technical problems have been surfaced and corrective action taken. Type classification in March 1990 will permit the FY 1990 production program to be initiated and support the updated M119 delivery schedule.

Tactical Explosives

Question. Last year, the Committee urged the Army to proceed with testing and procurement of a tactical explosive system (TEXS). What is the status of this program?

Answer. The Army has completed testing of two blasting agent systems and is currently testing a nitromethane system. Based on the analysis of test to date, as described in the response to question 3, the Army decided that a one-year development (FY 1990) is required to meet the requirement as established in the required operational capability (ROC). Procurement is programmed for FY 1991.

Question. What are the testing and procurement milestones and when will the required report be submitted to the Committee?

Answer. Milestones are as follows:

Complete Nitromethane Testing	4th qtr FY 89
Award Development Contract	1st qtr FY 90
(Timely appropriation is essential)	
Type classify	1st qtr FY 91
Award Procurement Contract	2nd qtr FY 91
Submit report	1st qtr FY 90

Question. What are the results of tests to date?

Answer. The competing contractors for both blasting agent and nitromethane failed assorted requirements. The original Non-Developmental Item (NDI) testing has revealed that no existing system can meet the ROC. However, enough technology has been demonstrated to warrant a developmental effort.

Question. How much is in the 1990/91 budget for TEXS?

Answer. Budget line—RDT&E is Landmine Warfare/Explosive Demolitions Program Line 64808D021, FY 90—$4.119M, FY 91—0. Procurement Budget Line—Ammunition/Demolitions (all types), Line 108, FY 1990—0, FY 1991—$3.6 million; OPA 3, FY 1990—0, FY 1991—$2.969 million.

[Clerk's note.—End of questions submitted for the record.]

Mr. Wilson. Thank you very much, General. We appreciate your testimony.

The committee stands adjourned.

WEDNESDAY, APRIL 5, 1989.

MISSILE AND OTHER PROCUREMENT, ARMY

WITNESSES

MAJOR GENERAL JOE W. RIGBY, UNITED STATES ARMY, DIRECTOR FOR OTHER PROCUREMENT, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT AND ACQUISITION

BRIGADIER GENERAL WILLIAM S. CHEN, UNITED STATES ARMY, ASSISTANT DEPUTY FOR SYSTEMS MANAGEMENT, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH, DEVELOPMENT AND ACQUISITION

MEL BURCZ, PROGRAM EXECUTIVE OFFICER FOR COMBAT SUPPORT, UNITED STATES ARMY

INTRODUCTION

Mr. MURTHA. The Committee will come to order. We will hear testimony today on the Army's missile procurement and other procurement accounts. Pursuant to a motion previously passed and due to the classification of the material to be discussed, this hearing will be held in executive session.

The principal witnesses today are Major General Joe W. Rigby, Director for Other Procurement within the Office of the Assistant Secretary of the Army for Research, Development and Acquisition, and Brigadier General William S. Chen, Assistant Deputy for Systems Management within the same office.

The total budget requests we are considering today are $2.9 billion for missile procurement, an increase of 12 percent above 1989, and $1.6 billion for other procurement activities 1 and 3, a decrease of 15 percent below 1989.

Welcome, gentlemen. We will place your entire statements in the record and ask you to summarize your remarks.

SUMMARY STATEMENT OF GENERAL RIGBY

General RIGBY. It is my pleasure to provide the OPA 1 and OPA 3 budget for fiscal years 1990 and 1991 for you today.

I am going to be referring to a small packet of charts.

For the fiscal year 1990–91 budget, we continue to maintain and improve our equipment, both combat support and combat service support, to achieve a worldwide balance of deterrent and warfighting capability.

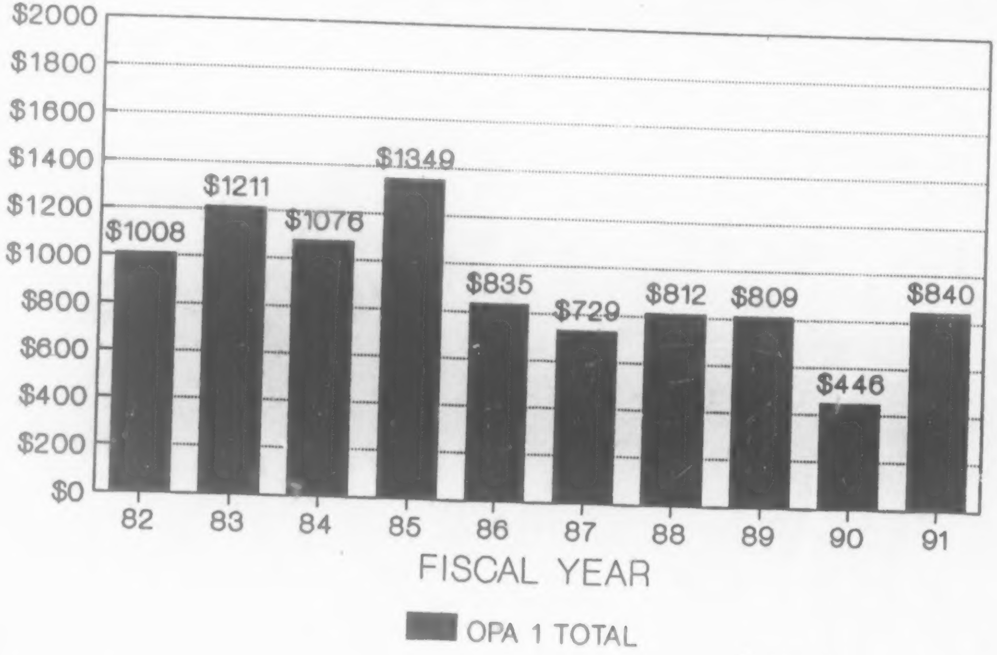
TACTICAL AND SUPPORT VEHICLES

The logistics required to sustain and maintain the forces in a combat-ready status highlights the importance of the tactical and support vehicles and other support equipment programs, OPA 1.

I refer you to chart 1 showing the history of that appropriation since 1982. In the latter part of the eighties, we have had to make reductions in this account on the basis of priority and affordability within our constrained resource environment.

[Chart follows:]

OPA-1 TACTICAL AND SUPPORT VEHICLES
APPROPRIATION HISTORY



$'S IN MILLIONS

(CHART 1)

FISCAL YEAR 1990–1991 BUDGET REQUEST

General RIGBY. Chart 2 summarizes the 1990–1991 program for OPA 1. These represent a transition point for the eighties.

We have reduced funding for the nineties, but it continues the successful High Mobility Multipurpose Wheeled Vehicle, HMMWV, program which is in the second year of a new five-year multiyear contract and continues a fiscal year 1989 procurement of a Heavy Equipment Transporter which permits us to transport the 70-ton Abrams tank.

We also being a multiyear procurement of the critically needed Palletized Loading System which will significantly improve the efficiency of Corps Ammunition Distribution Systems.

Fiscal year 1990 does not, however, provide any procurements for the medium fleet nor does it procure additional Heavy Expanded Mobility Tactical Trucks, HEMTT's, as required by the fiscal year 1988–1989 Authorization Act. Both actions are due to affordability and the warfighting priority of these programs relative to other critical Army programs.

In fiscal year 1991, we have increased OPA 1 funding to continue HMMWV, PLS and HET multiyear procurements and to begin full production of the new, state-of-the-art family of medium tactical vehicles which will start to correct our current medium tactical fleet deficiencies.

I earlier stated that we were unable to fund the additional HEMTT's for fiscal years 1990 and 1991 as required by the fiscal year 1988 and 1989 Authorization Act due to affordability.

[Chart follows:]

FY 90/91 OPA 1 BUDGET

FY 90 FUNDING

- FY 90 TRANSITION YEAR - TRUCK FUNDING $346M + $20M TRAILERS
- CONTINUES HEAVY EQUIPMENT TRANSPORTER (HET) PROCUREMENT
- CONTINUES HMMWV 5 YEAR MULTIYEAR PROCUREMENT (FY 89-93)
- BEGINS PALLETIZED LOADING SYSTEM (PLS) PRODUCTION (FY 90-95)
- NO MEDIUM PROCUREMENT
- NO HEMTT PROCUREMENT

FY 91 FUNDING

- TRUCK FUNDING $696M + $43M TRAILERS
- BEGINS MEDIUM PROCUREMENT (FAMILY OF MEDIUM TACTICAL VEHICLES - FMTV)
- CONTINUES HET PROCUREMENT
- CONTINUES HMMWV PROCUREMENT
- CONTINUES PLS PROCUREMENT

(CHART 2)

HEMTT TEN TON TRUCK

General RIGBY. If you turn to chart 3, the fiscal year 1988–1991 Authorization Act language directed procurement of 4,737 HEMTT's.

Congress did appropriate $239 million in both fiscal year 1988 and fiscal year 1989 for that procurement. We subsequently requested relief from the fiscal year 1989 buy, which was denied. Through 1989, we will have procured 2,954 HEMTT's. That leaves 1,783 to be procured in 1990 and 1991 to meet the congressional direction.

The Department of Defense and the Army have experienced considerable reductions in our TOA levels since passage of the fiscal year 1988–1989 Authorization Act. The Department is down $38 billion in fiscal year 1990; the Army almost $10 billion in fiscal year 1990.

In light of this reduced resource environment, the additional HEMTT's were not considered affordable when their relative priority to other warfighting programs were considered. I might add that the HEMTT's are at 88 percent of their procurement objective which is in very good shape compared to other tactical vehicle programs.

That decision on the HEMTT was one of many affordability questions that we had to address and decisions that we had to make.

We are in the process of requesting legislative relief for the remaining 1,783 HEMTT's. That request is being coordinated within the administration and we respectfully ask your consideration of that request.

[Chart follows:]

HEMTT

- O FY 88/89 DEFENSE AUTHORIZATION ACTION DIRECTED ARMY TO PROCURE 4,737 HEMTT'S, FY 88-91
- O 2,954 HEMTT'S WILL BE BOUGHT, FY 88-89
- O AFFORDABILITY BASED ON VEHICLES' RELATIVE PRIORITY TO OTHER ESSENTIAL PROGRAMS LED TO DECISION NOT TO BUDGET FOR 1,783 HEMTT'S, FY 90-91
  - o SINCE FY 88/89 AUTH ACT

	FY 90	FY 91
DOD	-$38 B	-$44 B
ARMY	-$10 B	-$10 B

- O REQUESTING RELIEF FROM LEGISLATION

(CHART 3)

MODERNIZATION PLAN

General RIGBY. Sir, quickly, going to chart 4, that summarizes our recently completed tactical wheeled vehicle modernization plan. This plan builds on the base of our 1990–1991 transition years and provides us a roadmap for the next 30 years of OPA 1 spending for tactical trucks and trailers. We will deliver this plan to Congress on or about April 20. Under this plan, the Army will maximize the tactical wheeled vehicle contributions to support warfighting capability and improve battlefield survivability while reducing peacetime sustainment costs.

The plan supports the distribution of vehicles by force packages—with priority given to first-to-fight units. It provides stable, approved annual funding levels of $750 million, plus or minus 15 percent, for trucks and plus $50 million for trailers in constant fiscal year 1989 dollars beginning in fiscal year 1995.

This allows us to structure executable multiyear procurements to support our modernization of the fleet.

The plan leads to reduced sustainment costs through a Service Life Extension Plan—SLEP—for the medium fleet, implementation of a viable washout policy; revised procurement objective by vehicle type; and increased logistic efficiency through state-of-the-art technology and vehicle commonality.

The plan also calls for us to reduce the variety of vehicles in our fleet. It may lead us to a light fleet based on a single vehicle, possibly the HMMWV. The medium fleet will use a SLEP program and a movement into the family of medium tactical vehicles. The heavy fleet will move into a single family of vehicles.

[Chart follows:]

MODERNIZATION PLAN

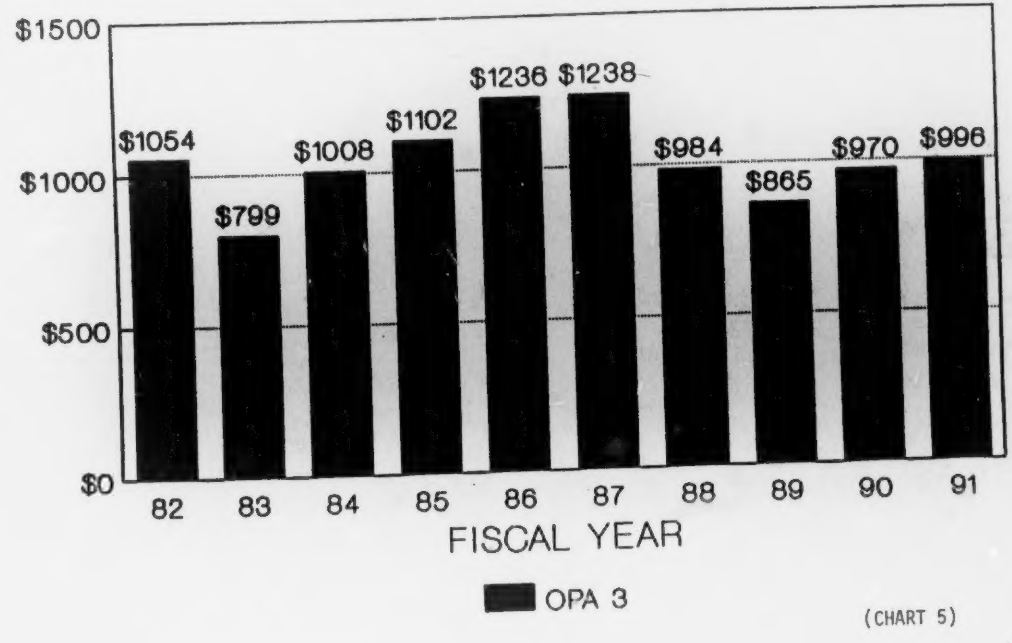
- o PRIORITY IS FIRST TO FIGHT
- o LEVELS FUNDING FOR TACTICAL WHEELED VEHICLES
- o CONSIDERS PEACETIME SUSTAINMENT COSTS
  - o SERVICE LIFE EXTENSION PROGRAM
  - o RETIREMENT
  - o REVISED PROCUREMENT OBJECTIVE TO MATCH PRIORITY TO FIGHT (429K REQT REVISED TO 286K PROCUREMENT OBJECTIVE)
  - o LOG EFFICIENCY THRU COMMONALITY
- o REDUCE THE VARIETY OF VEHICLES
  - o LIGHT - HMMWV
    - - CUCV USEFUL LIFE EXTENDED FROM 7 - 14 YEARS
  - o MEDIUM - FAMILY OF MEDIUM TACTICAL VEHICLES
    - - SLEP 2 1/2 AND 5 TONS
  - o HEAVY - FAMILY OF HEAVY TACTICAL VEHICLES

(CHART 4)

OTHER SUPPORT EQUIPMENT

General Rigby. On Chart 5, OPA 3, you will see that we had an increase from 1989 to 1990 in that account. This is attributed to procurement of key NBC defense systems such as the NBC reconnaissance system, and we continue procurement of our advanced mask and detection systems. We also increased our funding for non-systems training devices. In conclusion, with your continued support, we will be able to maintain unit readiness, maintain the momentum started in the eighties to modernize our equipment, and to incorporate emerging technology that will allow us to procure safer, more efficient, more cost-effective equipment for our soldiers.

[Chart follows:]



OPA 3, OTHER SUPPORT EQUIPMENT
APPROPRIATION HISTORY

(CHART 5)

$'S IN MILLIONS

CONCLUSION

General **Rigley**. Sir, before I close my opening statement, I would like to introduce two individuals who are with me today.

I would like to introduce Mel Burcz, the Program Executive Officer for Combat Support. He is the program manager for most of the truck programs; and Mr. Jim Emahiser, who is the Program Executive Officer for Troop Support.

In a climate where we have had a lot of criticism of the procurement process and the people in it, I would like to present these gentlemen as shining models of people who make the system work; good stewards of the taxpayers' dollars and of getting good equipment to the soldiers.

Mr. **Murtha**. You have a problem with the trucks and are they a shining example of the problem or——

General **Rigby**. Sir, they are leading us out of the problem.

[The biographical sketch and statement of General Rigby follows:]

Headquarters, Department of the Army

Biography United States Army

Washington, DC

Major General Joe W. Rigby

Deputy Chief of Staff for Development,
Engineering and Acquisition, Headquarters,
U.S. Army Materiel Command, Alexandria, VA 22333
July 1988 - Present

Major General Joe Rigby was born in Aspermont, Texas on 4 January 1940. He was commissioned a second lieutenant and awarded a Bachelor of Science degree in Military Science from the United States Military Academy in 1962. He also holds a Master of Business Administration degree with an Operations Research and Systems Analysis specialty from the University of Texas. His military education includes completion of the Infantry Basic and Advanced Officer courses, the United States Army Command and General Staff College, and the National War College.

He has held a wide variety of important command and staff positions culminating in his current assignment. Other key assignments held recently include duty as a Forces Analyst in the Program Analysis and Evaluation Directorate, Office of the Chief of Staff, Army; command of the 2d Brigade, 2d Infantry Division, with the Eighth United States Army; and Chief of the Program Development Division, Program Analysis and Evaluation Directorate, Office of the Chief of Staff.

General Rigby served in a variety of important career building assignments preparatory to his most recent duties. He was a Management Analyst for Systems Planning, and later Chief of Project Control for Tactical Operations Systems with the Army Computer Systems Command. Reassigned to the 25th Infantry Division in Hawaii, he commanded an infantry battalion and served as a brigade Executive Officer. General Rigby also performed duty as the division's Assistant Chief of Staff for Operations, G-3.

Awards and decorations which General Rigby has received include the Silver Star, the Legion of Merit, Bronze Star Medal with "V" device (with Oak Leaf Cluster), Purple Heart (with Oak Leaf Cluster),the Meritorious Service Medal (with Oak Leaf Cluster), and Air Medals with "V" device. He has also received the Army Commendation Medal and is authorized to wear the Combat Infantryman Badge, the Parachutist Badge, and the Ranger Tab.

Statement by Major General Joe W. Rigby on the Other Procurement, Army Appropriation for fiscal year 1990/91 for the House Appropriations Committee, 5 April 1989.

Mr. Chairman, members of the subcommittee:

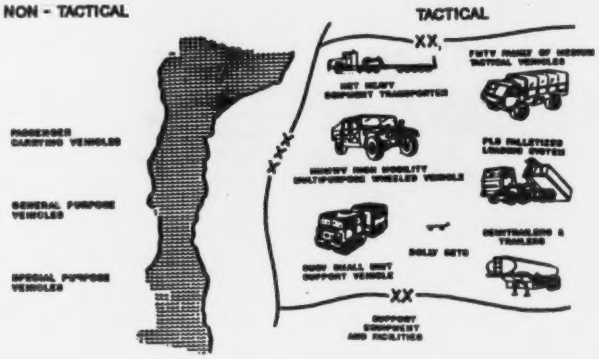
It is my pleasure to provide the Other Procurement, Army (OPA) appropriation budget request for FY 90 and 91. Within the OPA budget my discussion will be limited to activity one -- Tactical and Support Vehicles and activity three -- Other Support Equipment. Activity two concerning Command, Control, Communication and Intelligence program was previously addressed during a hearing in March.

For the FY 90/91 budget, the Army continues to maintain and improve its equipment, both combat support and combat service support, to achieve a worldwide balance of deterrent and warfighting capability. This budget permits the Army to fulfill the combat service support mission by providing for procurement of more efficient, modernized equipment and for aggressive programming for improvement of already fielded equipment, thus resulting in sustained readiness achieved with fewer resources.

OPA 1 and 3 programs are major contributors to maximizing the fire power and mobility of modernized combat systems by providing the high volume of ammunition and supplies required on time, across varied terrain of the battlefield, and by enhancing total combat mobility.

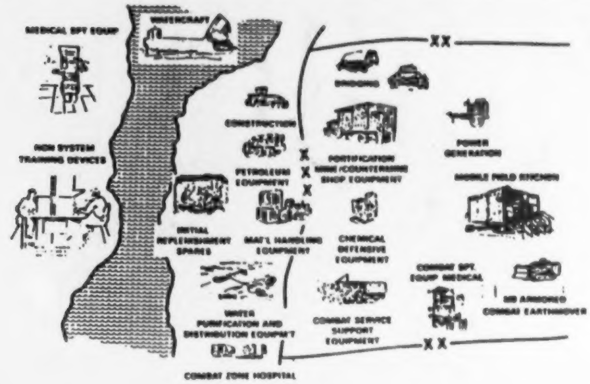
Chart 1 depicts graphically how the OPA 1 programs support the total Army worldwide from non-tactical vehicles in CONUS to tactical vehicles on the front lines. Tactical and support vehicles contribute to unit mobility and combat effectiveness by providing the infantry units with weapon carriers and troop transport, the medical units with vehicles to evacuate injured personnel, and the artillery and armor units with the means to transport ammunition and POL. In addition, forward deployed units are supported and sustained by tactical vehicles transporting a multitude of items from the M1A1 tank to command, control, communications and intelligence systems to food and supplies.

TACTICAL AND SUPPORT VEHICLES


NON - TACTICAL
TACTICAL
PASSENGER CARRYING VEHICLES
GENERAL PURPOSE VEHICLES
SPECIAL PURPOSE VEHICLES
XX
XXX
HET HEAVY EQUIPMENT TRANSPORTER
FMTV FAMILY OF MEDIUM TACTICAL VEHICLES
HMMWV HIGH MOBILITY MULTIPURPOSE WHEELED VEHICLE
PLS PALLETIZED LOADING SYSTEM
SUSV SMALL UNIT SUPPORT VEHICLE
DOLLY SETS
SEMITRAILERS & TRAILERS
XX
SUPPORT EQUIPMENT AND FACILITIES

Combat effectiveness is also multiplied by meeting specialized equipment needs of the soldier and field commander. Chart 2 presents a graphic depiction of how this is accomplished by the OPA 3 programs through providing a variety of equipment items to the soldier such as chemical defense equipment required for contamination avoidance, individual protection and decontamination; enhancing front line mobility, counter-mobility and survivability with the capabilities of the M9 Armored Combat Earthmover (M9 ACE);

OTHER SUPPORT EQUIPMENT

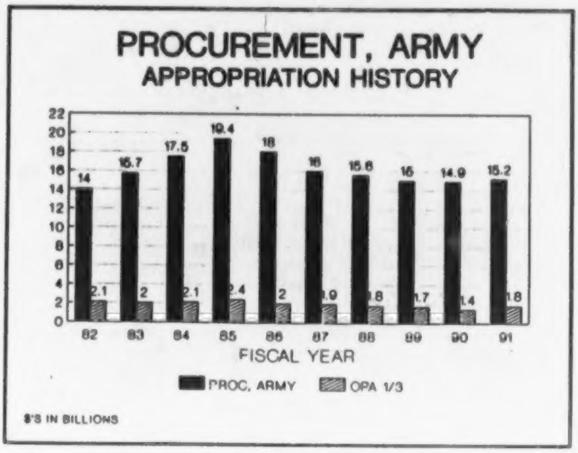

MEDICAL SPT EQUIP
WATERCRAFT
XX
BRIDGING
CONSTRUCTION
POWER GENERATION
NON SYSTEM TRAINING DEVICES
PETROLEUM EQUIPMENT
FORTIFICATION MINE/COUNTERMINE SHOP EQUIPMENT
MOBILE FIELD KITCHEN
INITIAL REPLENISHMENT SPARES
MAT'L HANDLING EQUIPMENT
CHEMICAL DEFENSIVE EQUIPMENT
COMBAT SPT. EQUIP MEDICAL
M9 ARMORED COMBAT EARTHMOVER
WATER PURIFICATION AND DISTRIBUTION EQUIPM'T
COMBAT SERVICE SUPPORT EQUIPMENT
XX
COMBAT ZONE HOSPITAL

developing and procuring watercraft to provide the capability so crucial to the reception and discharge of materiel and units at the planned rate of arrival in the bare bones theaters; and by providing state-of-the-art medical equipment and care to give the wounded soldier the greatest chance of survival and return to duty.

The standard family of tactical electric power sources provides electrical power to our modernized command, control and communications and intelligence equipment on the battlefield while training devices and simulators contribute to combat ready units by minimizing the impact of constraints such as time, funding, safety and environmental concerns. One last example of the wide spectrum in types of equipment being procured by the OPA appropriation, yet required to support the combat soldier, is the modernization of our Area Oriented Depots (AOD). Procurement of state-of-the-art equipment at supply depots will improve Army receipt/storage and distribution of general supplies and ammunition to various locations worldwide.

As you see from my examples, the OPA 1/3 appropriations provide varied support to the soldier in the field in mobility, efficiency, and sustainment. The items procured in this appropriation provide the critical infrastructure to support the Army and its field equipment. It must remain in balance with those major items we procure in other appropriations to insure we do not create an imbalance of combat systems to support systems thus reducing overall combat efficiency and contribute to a hollow Army.

Chart 3 shows that the OPA 1/3 programs have, on average, maintained approximately 11 percent of the procurement appropriation since FY 82. The trend depicts the OPA programs peaking in the mid-



1980's, which afforded the Army the opportunity of a faster fill of unit equipment shortages for the fielding of major new weapon systems.

Moving soldiers, supplies and equipment rapidly and efficiently is vital to the success of both peacetime and wartime missions.

The logistics required to sustain and maintain the forces in a combat ready status highlighted the importance of the tactical and support vehicles and other support equipment programs.

Moving into the late 1980's, we have had to make in this appropriation reductions on the basis of priority and affordability within a constrained resource environment. Chart 4 depicts the history of OPA 1 since 1982.

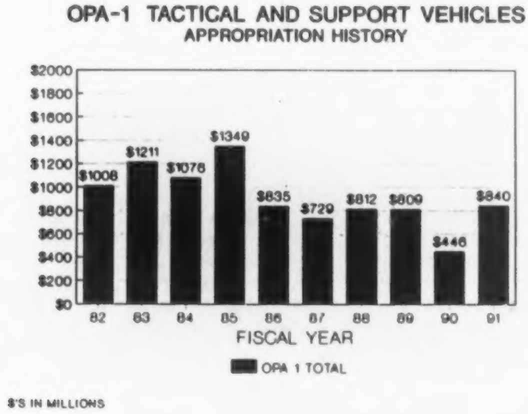
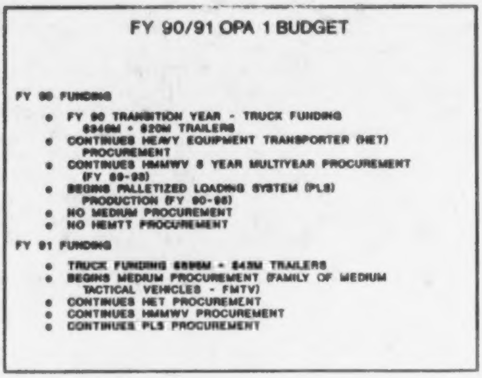


Chart 5 summarizes the FY 90/91 program for OPA 1.



FY 90/91 OPA 1 BUDGET

FY 90 FUNDING

- FY 90 TRANSITION YEAR - TRUCK FUNDING $340M + $20M TRAILERS
- CONTINUES HEAVY EQUIPMENT TRANSPORTER (HET) PROCUREMENT
- CONTINUES HMMWV 5 YEAR MULTIYEAR PROCUREMENT (FY 89-93)
- BEGINS PALLETIZED LOADING SYSTEM (PLS) PRODUCTION (FY 90-95)
- NO MEDIUM PROCUREMENT
- NO HEMTT PROCUREMENT

FY 91 FUNDING

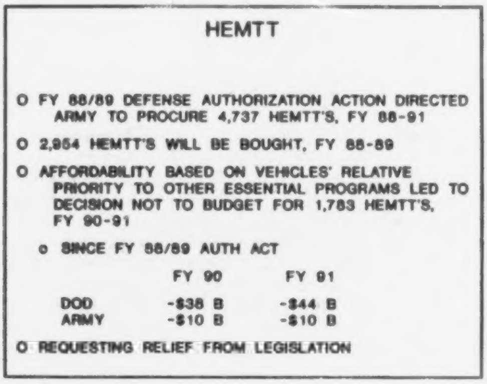
- TRUCK FUNDING $898M + $43M TRAILERS
- BEGINS MEDIUM PROCUREMENT (FAMILY OF MEDIUM TACTICAL VEHICLES - FMTV)
- CONTINUES HET PROCUREMENT
- CONTINUES HMMWV PROCUREMENT
- CONTINUES PLS PROCUREMENT

The FY 90 programs presented today represent a transition point from the 1980's. Our reduced funding in FY 90 continues the successful High Mobility Multipurpose Wheeled Vehicle (HMMWV) program which is in the second year of a new five year multiyear contract and continues an FY 89 procurement of a Heavy Equipment Transporter (HET) which permits us to transport the 70 ton Abrams tank. We also begin a multiyear procurement of the critically needed Palletized Loading System (PLS) which will significantly improve the efficiency of corps ammunition distribution systems. FY 90 does not, however, provide any procurements for the medium fleet nor does it procure additional Heavy Expanded Mobility Tactical Trucks (HEMTT) as required by the FY 88/89 Authorization Act. Both actions are due to affordability and warfighting priority.

In FY 91 we have increased OPA 1 funding to continue HMMWV, PLS and HET multiyear procurements and to begin full production of the new, state-of-the-art Family of Medium Tactical Vehicles (FMTV) which will start to correct our current medium tactical fleet deficiencies.

I earlier stated that we were unable to fund the additional HEMTT's for FY 90 and 91 as required by the FY 88/89 Authorization Act due to affordability based on the vehicle's relative priority to other essential Army programs and limited available resources.

As shown on Chart 6, the FY 88/89 Authorization Act language directed procurement of 4,737 HEMTT's, FY 88-91.



HEMTT

- O FY 88/89 DEFENSE AUTHORIZATION ACTION DIRECTED ARMY TO PROCURE 4,737 HEMTT'S, FY 88-91
- O 2,954 HEMTT'S WILL BE BOUGHT, FY 88-89
- O AFFORDABILITY BASED ON VEHICLES' RELATIVE PRIORITY TO OTHER ESSENTIAL PROGRAMS LED TO DECISION NOT TO BUDGET FOR 1,783 HEMTT'S, FY 90-91
  - o SINCE FY 88/89 AUTH ACT

	FY 90	FY 91
DOD	-$38 B	-$44 B
ARMY	-$10 B	-$10 B

- O REQUESTING RELIEF FROM LEGISLATION

Congress appropriated $239 million in both FY 88 and FY 89 to begin this procurement. A request for relief from the law for FY 89 was subsequently denied by Congress. A total of 2,954 HEMTT's will be bought in FY 88 and FY 89. This leaves 1,783 to be purchased in FY 90 and FY 91 to meet Congressional direction. The Department of Defense (DoD) and the Army TOA levels for FY 90 and 91 have been considerably reduced since passage of the FY 88/89 Authorization Act --DoD down $38 billion and the Army down almost $10 billion in FY 90. In light of this reduced resource environment, the additional HEMTT's were not considered affordable when their relative priority to other essential Army programs was addressed. This is but one of many affordability decisions we were forced to make. We are in the process of requesting legislative relief from procurement of the remaining 1,783 HEMTT's. Our request is currently being coordinated within the Administration. This legislation is part of the proposed DoD Authorization Act for FY 90/91.

Chart 7 summarizes the Army's recently approved Tactical Wheeled Vehicle Modernization Plan which builds on the base of the FY 90 transition year and provides an executable, effective roadmap for the next thirty years of OPA 1. Under this plan the Army will maximize the tactical wheeled vehicle contributions to support warfighting capability and improve battlefield survivability while reducing peacetime sustainment costs.

MODERNIZATION PLAN

- PRIORITY IS FIRST TO FIGHT
- LEVELS FUNDING FOR TACTICAL WHEELED VEHICLES
- CONSIDERS PEACETIME SUSTAINMENT COSTS
  - SERVICE LIFE EXTENSION PROGRAM
  - RETIREMENT
  - REVISED PROCUREMENT OBJECTIVE TO MATCH PRIORITY TO FIGHT (429K REQT REVISED TO 286K PROCUREMENT OBJECTIVE)
  - LOG EFFICIENCY THRU COMMONALITY
- REDUCE THE VARIETY OF VEHICLES
  - LIGHT - HMMWV
    - CUCV USEFUL LIFE EXTENDED FROM 7 - 14 YEARS
  - MEDIUM - FAMILY OF MEDIUM TACTICAL VEHICLES
    - SLEP 2 1/2 AND 5 TONS
  - HEAVY - FAMILY OF HEAVY TACTICAL VEHICLES

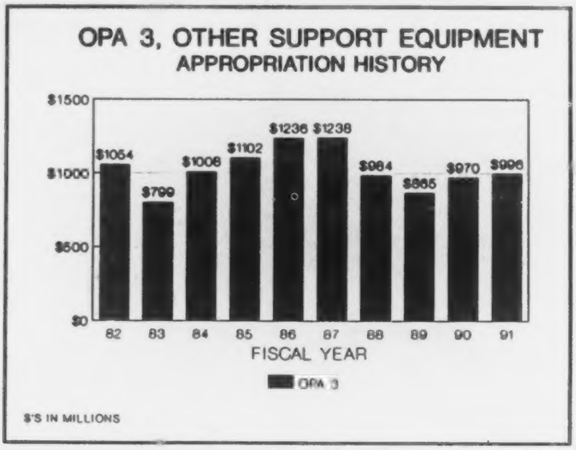
The plan supports the distribution of vehicles by force packages - with priority given to first to fight units. It provides stable, approved annual funding levels of $750 million (+/-15 percent) for trucks plus $50 million for trailers in constant FY 89 dollars beginning in FY 95. This allows us to structure executable multiyear procurements to support our modernization of the fleet.

The plan leads to reduced sustainment costs through a Service Life Extension Plan (SLEP) for the medium fleet; implementation of a viable washout policy; revised procurement objective by vehicle type; and increased logistic efficiency through state-of-the-art technology and vehicle commonality.

The plan also calls for us to reduce the variety of vehicles in our fleet. It may lead us to a light fleet based on a single vehicle, possibly the HMMWV. The medium fleet will use a SLEP program for existing vehicles and the FMTV which capitalizes on commonality and new technology to improve efficiency, eliminate current shortages and reduce high operation and maintenance costs.

And finally the heavy fleet will move to a Family of Heavy Tactical Vehicles (FHTV) to reduce the number of vehicle types and take advantage of new technology and commonality.

You see from Chart 8, the FY 90/91 OPA 3 portion of the program has increased since last years budget.



This increase is largely attributed to the procurement of key Nuclear, Biological and Chemical (NBC) defense systems. Since NBC capabilities impact across the entire spectrum of the battlefield, military readiness would be jeopardized by the lack of a credible NBC defense. The initial procurement of the NBC Reconnaissance System starting in FY 90 will fill the urgent operational need to execute contamination avoidance throughout the depth of the battlefield, and is a quantum leap forward in our NBC defense posture. Procurement continues on modernized masks and NBC detection systems.

As training funds and maneuver areas become further constrained, training devices and simulators become a cost effective means to ensure our soldiers are fully prepared for combat. Increased funding in FY 90/91 reflects a requirement to procure advanced technology to meet the challenge of training and sustaining tomorrow's Army.

For the FY 90/91 budget, the Army's emphasis is on maintaining essential force readiness. The challenge has, and will continue to be, the reduction of the logistical burden by providing our soldiers with state-of-the-art support and equipment needed to maintain deterrence and to prevail in case of war.

With your continued support the Army can continue to maintain unit readiness, to maintain the momentum started in the mid-1980's to modernize our equipment and to focus on emerging technology that promise potential for the procurement of safer, more efficient, more cost effective combat support and combat service support equipment.

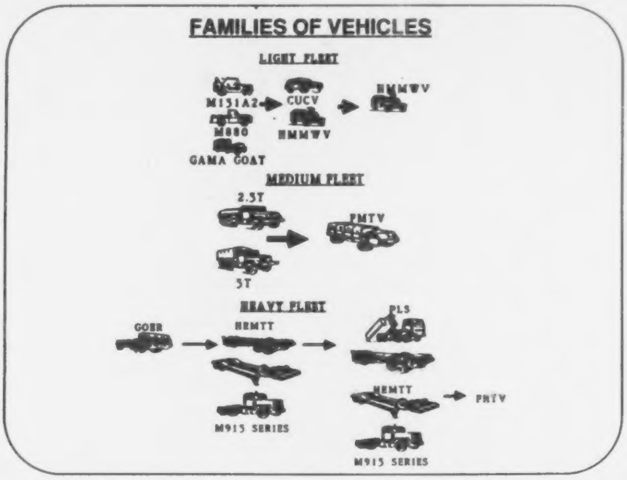
This completes my opening statement. I would like to insert a more detailed statement for the record. I have a few individuals who manage the OPA 1 and 3 major programs here with me today.

Mr. Jim Emahiser, Program Executive Officer for Troop Support, and

Mr. Mel Burcz, Program Executive Officer for Combat Support. We are prepared to address any questions you might have on OPA 1 and 3 programs.

Budget activity one (OPA 1), Tactical and Support Vehicles, provides the acquisition of tactical wheeled vehicles, trailers, non-tactical vehicles, associated equipment and spare parts which are essential for effective Army service support and unit mobility throughout the deep, close and rear areas of the modern battlefield. The Army's tactical wheeled vehicle programs within OPA 1 are critical to ensure continuous effective, efficient service support on the battlefield as well as in peacetime. Trucks are the backbone of a complex logistics system which must provide increasingly modern weapon systems with an uninterrupted logistics lifeline of ammunition, fuel, repair parts and supplies delivered whenever and wherever required to keep the peace or win the battle.

The Army's truck fleet generally consists of light, medium and heavy tactical wheeled vehicles as depicted in Chart 9. Also depicted here are the trends we see from the past, through the present, to the future of our tactical wheeled vehicle fleets.



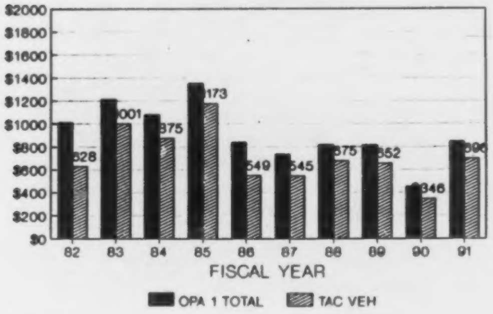
The light fleet includes the High Mobility Multipurpose Wheeled Vehicle (HMMWV) and the Commercial Utility Cargo Vehicle (CUCV), as well as older Jeeps, Gama Goats and M880 commercial vehicles. These vehicles are generally within the 1/4 ton to 5/4 ton payload range, and are used primarily in command and control roles.

Multiple models of both 2 1/2 ton and 5 ton trucks comprise today's medium fleet. These vehicles are the Army's workhorses, performing a wide variety of missions from individual unit mobility to an assortment of tactical, logistical, and administrative support functions.

Our heavy vehicle fleet consists of vehicles above a nominal 7.5 Ton class and includes the 10 ton Heavy Expanded Mobility Tactical Truck (HEMTT) used primarily to refuel and rearm today's modern weapons systems, and an array of heavy tractors and associated trailers which provide line haul of supplies and movement of heavy equipment like construction equipment and tanks.

Since 1981 the investment accounts have declined, reducing the dollars available to meet our modernization needs. This is shown for the OPA 1 activity in Chart 10 which defines the relationship of major vehicle programs to total OPA 1 funds by year.

OPA-1 TACTICAL AND SUPPORT VEHICLES
APPROPRIATION HISTORY



$'S IN MILLIONS

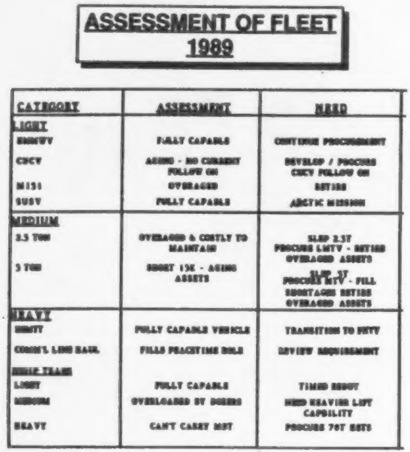
In this same period army truck programs have received fluctuating levels of funding support as we strove to modernize and upgrade our vehicle fleets. We have worked hard to maintain an effective balance between weapon system modernization programs and support systems. While OPA has been reduced along with other investment accounts, it maintains the balance necessary to keep the fighting force effective by supporting the mobility and sustainment needs of the soldier and field commander.

As the 1980's began we chose to address the need to improve the light fleet, upgrade the heavy fleet to support new weapon systems fielding and maintain the medium fleet. In the early 1980's the Army began an aggressive program to modernize the light fleet and to replace aging and unsafe vehicles. As a result, approximately 42,000 tactical HMMWV's and 60,000 commercial CUCV's have been fielded to date. Many older vehicles still remain in the light fleet. A number of these older vehicles have been washed out of the system as uneconomical to retain, while a significant number, replaced by HMMWV's and CUCV's have been placed in war reserve stockage.

Our initial focus on improving the readiness and capability of the light fleet and upgrading the heavy fleet limited our efforts to both modernize and fill shortages in the medium fleet. Competing priorities and systems affordability permitted a relatively steady, but reduced, flow of 5 ton trucks into the fleet despite our significant shortages and the aging 2 1/2 ton inventory. Even with the improved M939A2 5 ton truck, we obtain no significant technological advances in either design or reliability. We added no 2 1/2 ton trucks nor have we improved on the 1950's design and technology of the 2 1/2 ton truck, the last of which were produced in 1976. Consequently, our 2 1/2 ton trucks and the majority of our 5 ton trucks do not meet today's federal highway operating standards. Most significant of these are the Department of Transportation (DoT) standards for brake systems. The shortage of 5 ton vehicles, which impacts readiness, and the increasing age of our 2 1/2 ton trucks which creates a significant availability and costly maintenance burden, detract from a unit's ability to accomplish its primary mission as well as reduces its overall readiness.

We have also concentrated on modernization of our heavy truck capability through previous year procurements of the 10 ton Heavy Expanded Mobility Tactical Truck (HEMTT). This system, consisting of cargo vehicles, fuel tankers and heavy wreckers, has been instrumental in our ability to field and effectively support such tactical weapon systems as the Apache helicopter, Multiple Launch Rocket System, Patriot missile and M1/M1A1 Abrams tank.

Our efforts in the 1980's have left us with an Army truck fleet whose status is summarized in Chart 11.



ASSESSMENT OF FLEET
1989

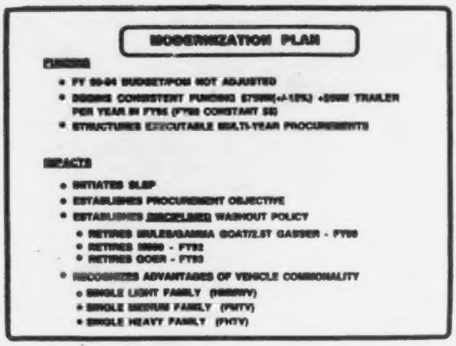
CATEGORY	ASSESSMENT	NEED
LIGHT		
HMMWV	FULLY CAPABLE	CONTINUE PROCUREMENT
CUCV	AGING - NO CURRENT FOLLOW ON	DEVELOP / PROCURE CUCV FOLLOW ON
M151	OVERAGED	RETIRE
SUSV	FULLY CAPABLE	ARCTIC MISSION
MEDIUM		
2.5 TON	OVERAGED & COSTLY TO MAINTAIN	SLEP 2.5T PROCURE LMTV - RETIRE OVERAGED ASSETS
5 TON	SHORT 13K - AGING ASSETS	SLEP 5T PROCURE MTV - FILL SHORTAGES RETIRE OVERAGED ASSETS
HEAVY		
HEMTT	FULLY CAPABLE VEHICLE	TRANSITION TO FHTV
COMM'L LINE HAUL	FILLS PEACETIME ROLE	REVIEW REQUIREMENT
EQUIP TRANS		
LIGHT	FULLY CAPABLE	TIMED REBUY
MEDIUM	OVERLOADED BY DOZERS	NEED HEAVIER LIFT CAPABILITY
HEAVY	CAN'T CARRY M1	PROCURE 70T HETS

The funding trend already described for OPA 1 continues in FY 90 and 91. While this trend has slowed our efforts to modernize in all our fleets as rapidly as we would like, it also represents the hard trade-offs within and outside the OPA accounts needed to give the Army the most combat effective force within constrained available resources. In the OPA 1 account we have taken a hard look at program priorities and affordability while working to preserve the unit readiness improvements, improved combat capabilities, and productivity programs funded and fielded since the mid-1980's.

OPA 1 reductions reflect program execution status, priority, and affordability within today's constrained fiscal environment. Although the Army faces reduced availability of resources and the overall rate of our modernization efforts may have slowed, our continued emphasis on increased productivity programs to supplant more labor intensive methods through modern, efficient vehicles will permit the Army to perform the combat service support mission with fewer soldiers. The continued procurement of proven, more modern and efficient trucks, and the transition to several new programs will result in additional gains in unit readiness, as well as reduced operations and support costs.

In response to the onset of more austere budget support, as well as the recognition by the Army, DoD and Congress of the need for a balanced, stable and effective long term program for trucks, the Army has been developing its Tactical Wheeled Vehicle Modernization Plan. This plan, represents an intensive effort to identify a clear and executable roadmap for the development, acquisition and fielding of modern trucks to maximize tactical wheeled vehicle contributions to warfighting capability and battlefield survivability while minimizing our peacetime sustainment costs.

Chart 12 summarizes the funding strategy and impacts of the modernization plan.



MODERNIZATION PLAN

FUNDING

- FY 90-94 BUDGET/POM NOT ADJUSTED
- DESIGNS CONSISTENT FUNDING $750M(+/-15%) +$50M TRAILER PER YEAR IN FY95 (FY89 CONSTANT $S)
- STRUCTURES EXECUTABLE MULTI-YEAR PROCUREMENTS

IMPACTS

- INITIATES SLEP
- ESTABLISHES PROCUREMENT OBJECTIVE
- ESTABLISHES DISCIPLINED WASHOUT POLICY
  - RETIRES MULES/GAMMA GOAT/2.5T GASSER - FY90
  - RETIRES M880 - FY92
  - RETIRES GOER - FY93
- RECOGNIZES ADVANTAGES OF VEHICLE COMMONALITY
  - SINGLE LIGHT FAMILY (HMMWV)
  - SINGLE MEDIUM FAMILY (FMTV)
  - SINGLE HEAVY FAMILY (FHTV)

In developing this plan which provides a focus for an intelligent and constant effort to effectively modernize our tactical wheeled vehicle fleet over thirty years -- through 2020, we used the FY 90-91 budget as a base line and made only minor internal adjustments with the remainder of the FY 90-94 Fiscal Year Defense Plan (FYDP) period. In this way FY 90 and 91 becomes a true transition period for tactical wheeled vehicle acquisition.

The TWVMP provides a stable annual funding level of $750 million (+/- 15%) plus $50 million for trailers (in constant FY 89 $) beginning in FY 95. The plan also identifies an objective annual funding level of $1.2 billion (in constant FY 89 $) for OPA 1 programs if funds are available. The stable funding level provides the minimum amount needed to continue modernization and allow us to reduce operations and support costs in the tactical wheeled vehicle fleet while recognizing the need for more rapid improvements should available funding permit. The plan structures executable multiyear procurements to support the modernization of all our fleets.

In addition to a stable funding profile to support long term, more effective acquisition programs for our trucks and trailers, this landmark plan for tactical wheeled vehicles includes the following key points:

- Approval and implementation of a comprehensive Service Life Extension Plan (SLEP) for selected 2 1/2 ton and 5 ton vehicles in the medium fleet. Through SLEP overage/overmile medium vehicles can be rehabilitated at a fraction of the new vehicle cost and many years of cost effective operation given back to the fleet.
- Establishes a new procurement objective based on the filling of force packages with vehicles within useful life based on the timing of the force package's introduction to combat. Under this change in how we determine our procurement objective to meet Army operational needs, we will fill force package one -first to fight units - to 100 percent with vehicles within useful economic life and the remaining force packages to 70 percent with vehicles within/beyond economic life. This approach supports the Army strategy to modernize by thirds sequentially with top priority to units that are first to fight regardless of component.
- Establishes a disciplined washout policy by vehicle type.

Under this policy we will be able to selectively retire old, difficult to maintain, costly to operate vehicles like the Mule, Gama Goat, gasoline engine 2 1/2 ton trucks, M880, and Goer and replace them with more modern, efficient, and capable vehicles. This policy will be supported by an expanded sample data collection program to help us identify when our vehicles reach economic useful life.

- Supports and emphasizes the advantage of vehicle commonality by reducing the numbers and types of vehicles in each fleet. In the light fleet we will make a decision whether to continue with a mixed HMMWV/CUCV fleet or to transition to an all HMMWV type light fleet. We already are moving forward with the single Family of Medium Tactical Vehicles to meet our workhorse medium fleet needs with reduced operating costs and improved efficiency. In the heavy fleet, where we now find our most diverse mix of vehicle types, we will determine the feasibility of eventually moving to a single Family of Heavy Tactical Vehicles, probably based on the new and very versatile Palletized Loading System.

In summary, the Tactical Wheeled Vehicle Modernization Plan provides a stable funding profile with potential for increase to support effective multiyear procurements to meet our truck requirements. It also supports Army modernization plans while providing us the tools like SLEP, improved vehicle technology and families of vehicles to reduce our sustainment costs.

Let me now turn to some of the specifics of our FY 90-91 request. Our FY 90-91 OPA 1 budget request for the procurement of tactical and support vehicles and the associated RDT&E budget request supports the following initiatives:

In the heavy fleet it capitalizes on the increased productivity, interoperability and efficiency offered by the Palletized Loading System and procures a critically needed Heavy Equipment Transporter capable of deploying the 70 ton M1A1 series main battle tank. In the medium fleet we will begin procurement of the modern Family of Medium Tactical Vehicles which offers the most current automotive technology, improved mobility, and reduced operating costs, to replace the old, expensive to maintain, 2 1/2 ton trucks and to help fill existing 5 ton truck shortages. In the light fleet, which is relatively well off as the 1980's close, we will continue to procure HMMWV's to support major systems fielding and replace some of the older vehicles in the inventory. We will also continue our support for the many lower dollar value programs within OPA 1 such as the SUSV, trailers, and non-tactical vehicles which are also very important and required to meet special requirements.

With these initiatives in mind, I will begin with the heavy vehicle fleet. The Army has obtained an excellent heavy truck capability through our acquisition of the 10 ton HEMTT. Procurement of the very successful HEMTT has continued by the execution of contract options in FY 88 and a one year sole source contract extension with the current producer in FY 89. That contract extension should soon be completed. It was determined through negotiation with the producer that the two year multiyear approach directed by Congress was more costly than a combination of existing options and a new single year contract. We notified you of our plan to proceed in this way.

When the FY 89 budget was presented to you the 4,737 additional HEMTT's directed by the FY 88/89 Authorization Act exceeded the Army's initial issue quantity plus POMCUS requirements. Our request for relief from that direction was denied. We will procure a total of 2,954 HEMTT's in FY 88 and 89, leaving a balance of 1,783 vehicles needed to meet Congressional direction. HEMTT's are unfunded in the FY 90-91 budget because they are considered unaffordable within available total obligation authority (TOA) and the HEMTT's relative priority against other essential Army programs.

units and replace normal losses. This shortage, when combined with the aging and costly-to-maintain 2 1/2 ton truck fleet, led to the concept of the Family of Medium Tactical Vehicles (FMTV) which will correct both problems.

The Family of Medium Tactical Vehicles will consist of a 2 1/2 ton payload Light Medium Tactical Vehicle (LMTV) and a 5 ton payload Medium Tactical Vehicle (MTV) in multiple body styles and with companion trailers. It will incorporate current automotive technology and maximum commonality to perform the same line haul, local haul, unit mobility and supply missions now accomplished by the older 2 1/2 ton and 5 ton trucks. Already supported by Congress in the previous FY 88/89 budget, our FY 90/91 budget request continues the testing and evaluation of FMTV prototypes in FY 90 and award of a production contract in FY 91.

Following a successful DAB Milestone II decision last May and approval of the Acquisition Decision Memorandum, three FMTV prototype contracts were awarded in October 1988. We expect first delivery of prototypes in December 1989 followed by extensive prototype testing. We anticipate awarding a multiyear production contract to one manufacturer in early FY 91.

One of the stipulations of the DAB approval was to conduct an independent study to determine the feasibility of retaining the 2 1/2 ton payload variant within the FMTV against a mix of 5/4 ton and 5 ton payload vehicles. This study was begun in November of last year and will be completed by June of this year. Its results will be used to support the production decision for the 2 1/2 ton payload variant for the FMTV.

We believe the continued full support and expeditious conduct of this critical NDI truck program to be the most effective and timely means of acquiring a family of 2 1/2 ton and 5 ton trucks which incorporates the latest automotive technology, provides increased reliability, and maximizes component level commonality within both payload classes, while resolving our medium truck fleet age, cost of operation, and shortage problems.

I will conclude my discussion of OPA 1 programs with the Army's light vehicle fleet which includes the HMMWV and the CUCV as well as older Jeeps (M151), Gama Goats, and M880 commercial vehicles. These vehicles are within the 1/4 ton to 5/4 ton payload range and are primarily used in command and control roles.

We do not plan to procure additional CUCV's in the near future. In fact, as a result of our modernization plan effort, we have extended the useful life of our CUCV fleet and will make a determination whether to transition at some future point to an all HMMWV type fleet. That decision will be made following an appropriate detailed review of the proposal.

We plan to continue our procurement of the highly successful HMMWV. The funds provided in the FY 90/91 budget ensure the continuation of a new competitive five year multiyear contract for approximately 39,000 more HMMWV's. We have already executed our last available FY 88 options and some of the available FY 89 options to ensure continuous production of HMMWV's until the new multiyear contract can be awarded in keeping with Congressional direction in the FY 88 Appropriations Act. A revised acquisition plan was approved and a letter prepared and forwarded to notify Congress as required of our intent to begin the Congressionally approved multiyear contract in FY 89 instead of FY 88 as originally approved by Congress. A request for proposal was released in February 1989. Contract award is scheduled for July.

The programs I have briefly covered include over 70 percent of the OPA 1 budget request. We have also requested funds in FY 90 and 91 to support the rest of the Army's tactical and support vehicle fleet. We plan to complete the Army's procurement of the Small Unit Support Vehicle (SUSV). This special purpose, tracked vehicle will be used by the 6th Infantry Division (ID) (Light) in Alaska to transport essential platoon equipment which otherwise would be back-packed or carried on a hand-towed sled. The FY 90/91 budget request also provides funds for a variety of lower dollar value programs including trailers and non-tactical vehicles. The trailers are particularly important due to their key role transporting equipment and supplies to sustain our combat forces.

In summary, in FY 90/91 we are beginning an extensive truck modernization program which includes significant programs in the heavy and medium tactical vehicle fleets, as well as continuation of our successful HMMWV light vehicle program. Effective execution requires stable and sufficient funding to procure the required quantities in competitive multiyear contracts that are attractive to industry and executable. The Army has planned the FY 90 and 91 programs to provide these essential procurements in a manner that will best serve the needs of tactical and support units, while benefiting the commercial truck industry. These years represent a transition point in our truck modernization effort with the Tactical Wheeled Vehicle Modernization Plan as the blueprint to carry us forward into the future. The Army's ability to achieve battlefield mobility, survivability and sustainability rests significantly within the OPA 1 vehicle programs. We consider the OPA 1 budget request as the minimum required to keep pace with other Army modernization efforts and seek your support for these vital programs.

I will now discuss the specific OPA 3 items contained in the FY 90/91 requirement.

OPA 3 provides a myriad of equipment covering a large portion of the logistical and defensive equipment spectrum.

All OPA 3 items of equipment are important to the Army and the field soldier whether it be a field laundry unit to provide the soldier with clean clothes or a gas mask that will protect him in an NBC environment. These items are not glamorous, they don't attract a great deal of attention unless they're not there.

The OPA 3 budget consists of thirteen functional areas covering many pieces of equipment. In the area of:

O Chemical Defensive Equipment, the Army's request is $118 million in FY 90 and $164 million in FY 91. The threat of chemical and/or biological warfare is pervasive, growing, and rapidly changing in character. Lessons of the Iran/Iraq war point to the significance of these items. Significant items of equipment being procured to insure survival are:

1) NBC Reconnaissance System, an armored vehicle capable of performing NBC reconnaissance on primary, secondary and cross-country routes wherever forces are deployed. This vehicle will detect, identify and mark areas of NBC contamination quickly and accurately. Should NBC agents be detected, this vehicle can provide the commander information necessary to formulate a scheme of maneuvers to avoid the threat.

2) Gas masks for the foot soldier, tanker and aviator. The masks provide a very significant operational improvement over the current family of protective masks resulting in enhanced survivability in the chemically contaminated battlefield. These are the first new masks for the soldier in 25 years.

3) Chemical Agent Monitor (CAM), a critical, hand held battlefield item for monitoring chemical agent contamination on personnel and equipment. The CAM provides the capability to detect and discriminate between vapors of nerve and mustard agents.

4) The Decontamination Apparatus provides the capability for the battalion to provide its own decontamination in forward positions, and the

5) Collective Protective Equipment converts buildings into protective shelters, allowing soldiers to work in an uncontaminated environment.

O Our high mobility modern weapon systems must not have their mobility restricted by rivers and gaps or we will lose momentum in the battle. We are seeing the beginning of a major bridging effort with this budget submission. The Bridging program requests $5 million in FY 90 and $33 million in FY 91. The Army's bridging program moves into the 1990's from a period of transition. RDT&E efforts will move into procurement in FY 90 with the Light Assault Bridge (LAB) and launcher. This bridge provides a dry gap capability for the Army's light division requiring rapid mobility and air transportability. In FY 91 the Army begins procurement of the Heavy Assault Bridge (HAB) which accommodates today's heavy forces by providing a Military Load Classification (MLC) of 70 tons.

O The Engineer (Non-Construction) Equipment comprises $73 million in FY 90 and $86 million in FY 91 of this budget request. The final two production years for the M-9 Armored Combat Earthmover (M-9 ACE) represents 45 percent of the total acquisition quantity of 580 vehicles. The M-9 ACE is mobile and possesses the ability to rapidly construct fighting positions and obstacles, making it an important combat multiplier for field commanders. The XM139 Mine Dispenser also continues procurement in FY 90 and 91. This dispenser provides a greater capability to quickly emplace tactical mine fields from both ground and airborne deployment modes and supports the VOLCANO system which is the primary land mine system used today. FY 91 starts production of the Mixer/Pumper Unit in support of the Tactical Explosive System known as the TEXS. This system provides an increased anti-tank barrier creating capability and significantly enhances the Army's countermobility capability. The Vehicle Magnetic Signature Duplicator (VEMSAID) transitions from RDT&E into production in FY 91. This coil provides a false signal that causes magnetic mines to detonate prematurely, thus enhancing soldier and equipment survivability.

O The $20 million in FY 90 and $34 million in FY 91 requested for the Combat Service Support functional area provides continued acquisition of numerous items. Included are Laundry Units for the Army's labor enhancing logistics unit productivity systems. This productivity effort, known as LUPS, will save manpower while accomplishing work more efficiently. Procurement of Air Conditioners continues through the 1990's with requirements to support major systems such as missile, aircraft and electronics equipment. The Rigid Wall Shelter Command Post currently in the final stages of RDT&E will start procurement in FY 90 and provide the Army with flexibility, commonality, and operational compatibility needed to direct and control forces in a fast paced and highly active combat situation.

Each of these diverse items serves a distinct and essential function in sustaining our combat forces.

O The procurement request for the Petroleum program totals $51 million in FY 90 and $78 million in FY 91. The majority of these program dollars support continued acquisition of the Southwest Asia Petroleum Distribution System required to receive, store and distribute bulk petroleum fuels to all DoD land based forces in Southwest Asia. The use of tactical pipeline is the most efficient and least manpower intensive method of distribution of large quantities of fuel over extensive land distances. Also included in this program are storage tanks and pumps used to store and move fuel.

O The Army continues to replace overaged, unsupportable and obsolete Water Purification Units by requesting $18 million in FY 90 and $25 million in FY 91. The 3,000 gallon Reverse Osmosis Water Purification Unit (ROWPU) is the primary item being procured. It provides the capability for purification of brackish/salt water and for the removal of NBC contaminants. This is a major improvement over older purification units which could purify only nonpotable fresh water. FY 90 starts a fully competitive follow-on multiyear contract for the ROWPU. Numerous items for storage, transportation and distribution of water are also contained in this program.

O In both FY 90 and 91 the request of $67 million provides for vital Deployable Medical Systems (DEPMEDS). DEPMEDS consists of standardized modular groupings that can be configured into hospitals for use anywhere in a wartime theater of operations. Various types of hospitals can be created by mixing the standard modules (e.g., operating rooms, laboratory, x-ray) that incorporate the latest in medical technology. The system includes both the medical and non-medical associated items of support equipment required for each type of hospital.

O Medical Support Equipment funded at $61 million in FY 90 and $62 million in FY 91 provides for the procurement of investment equipment to support health care programs in Army fixed medical treatment facilities worldwide and includes equipment for major medical Military Construction Army projects. This program also funds the replacement of worn-out and obsolete equipment and provides new technologies essential to modern medical practice.

O A budget request of $12 million in FY 90 and $10 million in FY 91 procures Maintenance Equipment which supports combat and tactical weapon systems. Many of the shop equipment sets being procured have multi-applications for Army maintenance organizations tasked with maintaining and repairing combat and tactical weapon systems. A portion of this request buys explosive ordnance disposal equipment which provides the capability to examine, identify, and render ordnance to a safe status in an effective and safe manner.

O In the Construction area FY 90 contains $5 million to procure various types of construction equipment shortages. $22 million is required in FY 91 to initiate a new multiyear procurement contract for the Small Emplacement Excavator (SEE). In order for defensive weapons systems to engage and defeat forces while being subjected to threat fires, they must be protected in combat emplacements. The SEE provides the Army the required capability to rapidly dig small combat emplacements (crew served weapon positions, command posts, and individual fighting positions) for units located in the main battle area.

O $2 million in FY 90 and $8 million in FY 91 for the Watercraft program predominantly funds productivity improvements to the existing fleet. Currently in development and scheduled for procurement in FY 92 is the Lighter, Amphibian, Heavy-Lift (LAMP-H); an air cushion lighter capable of transporting heavy tracked and wheeled vehicles, containers and heavy/oversized equipment to approximately 70 percent of the world's beaches where beach gradients and bottom conditions preclude the use of other lighterage.

O The Generator programs requires $42 million in FY 90 and $52 million in FY 91 to continue acquisition of the new family of commercial generator sets and assemblies to support weapon and command, control and communication systems used in a variety of combat and support roles. This new generation of equipment will provide improved mobility and reliability and result in a single fuel (diesel) on the battlefield.

O Material Handling Equipment program will procure primarily forklifts that are used to support the combat force. The request for this program is $36 million in FY 90 and $48 million in FY 91. Forklifts are used at all echelons of the field Army to include beach, water and air terminal operations, supply holding areas, and marshalling yards by supply, maintenance, engineer, transportation, field, and air artillery and ammunition units. This equipment is key to the logistics unit productivity system, enhancing production by requiring less personnel to perform supply missions.

O The final OPA 3 functional area I would like to address today is Other Support Equipment. FY 90's request is $459 million and $307 million in FY 91. This area contains a varied range of equipment and programs necessary for daily operations such as the spares program to support new and fielded equipment and non-centrally managed items which funds commercially available, off-the-shelf equipment used to support installation's day-to-day operations.

The FY 90 budget includes $122 million for the Host Nation Support program. This initiative to improve the Army's capability to rapidly reinforce United States and NATO forces in Europe in wartime or periods of rapid mobilization started with a United States/Germany agreement signed in 1982. Appropriation of FY 90 funds will complete all procurement requirements as specified in the agreement. This budget request also contains $1.5 Million to procure equipment in support of construction projects funded in Korea under the Combined Defense Improvement Projects (CDIP) program.

As the cornerstone of readiness, tough, realistic training will continue to be the basis of deterrence. Continued constraints on available resources will be a continuing challenge for the Army. Consequently, training strategies and programs are being developed to attain and sustain higher soldier/unit proficiency at lower costs. Institutional and unit training programs will expand the use of simulations and simulators to reduce costs and increase realism. Requirements for integrated, multi-echelon training will continue, with increased emphasis on joint and combined operations. To meet this requirement, the FY 90 and 91 request contains funds for the Combat Training Centers which are central to the Army's training strategy for the future. These centers provide the Army with a comprehensive mechanism that will provide training from the individual level to the corps commander and battle staff, in scenarios that will realistically replicate combat in low to high intensity scenarios.

Non-System Training Devices are also procured in this budget line. The thrust of this program is to procure state-of-the-art devices and simulators to enhance training and minimize the impact of training constraints. This training strategy insures that our soldiers are combat ready. A sample of the types of programs being procured in FY 90 and 91 are:

1. The Simulation Area Weapons Effect-Radio Frequency (SAWE-RF). This system simulates indirect fire and provides casualty damage assessment in combined arms exercises to include NBC. It is based on Global Positioning System (GPS) technology and will have vehicles and personnel equipped to receive signals indicating near miss and kills associated with the simulated use of artillery.

2. Tank Weapons Gunnery Simulation System (TWGSS)/Precision Gunnery System (PGS). This system will be used for precision gunnery training of platoon, company, and battalion level during force-on-force exercises. The system calculates the trajectory and impact points of rounds fired from the main gun and coaxial machine gun for TWGSS in the M1, M1A1 and M60A3 tanks. The PGS provides simulation for the 25mm cannon, coaxial machine gun and TOW weapon system.

Although displayed in a separate budget line the Close Combat Tactical Trainer (CCTT) is yet another example of training simulator being procured. CCTT is a simulation system wherein various simulators replicating actual combat vehicles and weapons systems, combat support , combat service support and command and control element work stations are networked so that fully interactive war-fighting in real-time, on computer generated terrain, can be conducted.

Finally, our last Other Support Equipment item - Area Oriented Depot (AOD) program - contains a request for $30 million in both FY 90 and 91. These funds, along with the $4 million appropriated in FY 89, will be used to upgrade the Central Distribution Center (CDC) at Red River Army Depot in Texas. Funds will provide purchase and installation of state-of-the-art Material Handling Equipment for all phases of the receipt, storage and issue processes.

In conclusion, the Army requests the support of Congress for these equipment programs. Our funding level is not what it has been in the past, nor what we would like it to be; however, within the budgetary constraints we are under, I believe the Army has achieved a reasonable program balance. Our primary purpose is to support the soldier. The programs presented today are a solid effort to provide that support.

Mr. MURTHA. General Chen.

SUMMARY STATEMENT OF GENERAL CHEN

General CHEN. I would like to highlight our fiscal year 1990 missile procurement budget request of $2.9 billion by discussing our programs in four categories.

The first is the multiyear procurements that we have. The second category are programs where we have continued competitive procurement. The third category are programs where we have the continued procurement with one contractor and the fourth category is where we have initial procurement or procurement being asked for the first time in a budget request.

In the first category, multiyear procurement, we have the Patriot, which is in the fourth year of a five-year multiyear; that is a high-medium altitude air defense system. Our Hawk missile buy is also a multiyear procurement. The multiyear contract is administered by the Army; the first two years, fiscal years 1988 and 1989, were for the Marine Corps. Fiscal year 1990 is the third year of a four-year multiyear. Our Multiple Launch Rocket System is also multiyear procurement and fiscal year 1990 is the second year of this multiyear.

The second category is where we have continued competitive procurement buys. The Stinger system in fiscal year 1990 will be a competitive split buy between two contractors. In Chaparral, we also have two sources and fiscal year 1990 will be a competitive buy. The Hellfire missile is competitive with two sources and we will have a competitive split buy in fiscal year 1990.

The third category is where we have continued procurement with one source. We have the continued procurement of the Pedestal Mounted Stinger which started in fiscal year 1987. We have the ADATS system which will be in the second year of procurement. We have the Army Tactical Missile System, known as ATACMS, that is in its second year of production. Fiscal year 1990 continues the buy of our TWO missile.

The fourth category is a category where we are asking for procurement funds for the first time and that is our Non-Line-of-Sight Forward area air defense system, the FOG-M, fiber optic guided missile. In fiscal year 1990, we have initial advance procurement requested for that.

This concludes my opening statement, Mr. Chairman, and we are ready to answer your questions.

Mr. MURTHA. Thank you very much.

[The biographical sketch and statement of General Chen follows:]

BRIGADIER GENERAL WILLIAM S. CHEN

BG William S. Chen has served in the Office of the Assistant Secretary of the Army for Research, Development and Acquisition, Department of Army, since April 1987, serving initially as the Director for Program Management Oversight, and now as the Assistant Deputy for Systems Management. Prior to this, he served as the Deputy Director for Weapons Systems, Office of the Deputy Chief of Staff for Research, Development, and Acquisition, Department of Army.

BG Chen has had a variety of assignments in combat developments, weapons systems acquisition, and project management. He has served as a Project Officer on high altitude missile air defense at the U.S. Army Combat Developments Command Air Defense Agency; Deputy Director, Department of Systems Management, Defense Systems Management College; Operations Research Analyst for missile and air defense programs in the Program Analysis and Evaluation Directorate, Office of the Chief of Staff, Army; and Chief, Munitions Division, Office of the Deputy Chief of Staff for Research, Development, and Acquisition, Department of Army. He also has served as the Project Manager, CHAPARRAL Air Defense System and Project Manager, Division Air Defense Gun.

BG Chen has commanded a battalion and has had overseas assignments in Korea, Vietnam, Thailand, and Laos.

His civilian education includes a BSE in Engineering Mathematics and an MSE in Aeronautical and Astronautical Engineering, both from the University of Michigan, and an MBA from Auburn University. BG Chen is a graduate of the Air Command and Staff College, Defense Systems Management College, and the Industrial College of the Armed Forces.

Statement by Brigadier General William S. Chen
on Army Missile Procurement for FY 1990 and FY 1991
for the House Appropriations Committee
5 April 1989

Mr. Chairman, I am BG William S. Chen, Assistant Deputy for Systems Management in the Office of the Assistant Secretary of the Army for Research, Development and Acquisition. It is an honor to appear before you today to present the Army Fiscal Years 1990/1991 (FY 90/91) procurement request for missiles. While the request is for two year funding, today I will focus on the FY 90 request.

We are all aware that the budget that you have before you was submitted by the outgoing administration. The Department of Defense is revising the FY 90 and 1991 biennial budget based on new guidelines.

The FY 90 request for $2907.9M includes 10 missile systems - The Air Defense systems are PATRIOT, STINGER, CHAPARRAL, Line-of-Sight-Forward-Heavy, Fiber Optic Guided Missile (FOG-M) and the Pedestal-Mounted-STINGER. Indirect Fire Support systems include the Multiple Launch Rocket System (MLRS) and Army Tactical Missile System (ATACMS). Close Combat Missile systems are the TOW 2A and HELLFIRE. As in FY 89 PATRIOT represents the largest procurement. MLRS procurement continues steadily, and we have added in our FY 90 request initial procurement funds for the FOG-M.

Our missile modification program continues to be robust in Fiscal Year 1990 as the Army continues to improve its existing systems to meet the evolving threat. Missile modifications include PATRIOT product improvements; continued procurement of smokeless motors for CHAPARRAL; continued procurement of Phase III modification kits for HAWK ground equipment; optical improvements to TOW; new warheads to upgrade the TOW inventory; improvements to the MLRS launcher to adapt it to firing the Army Tactical Missile system, the MLRS family of smart munitions such as Sense and Destroy Armor (SADARM), the Terminal Guidance Warhead (TGW) and Ground Launched Tacit Rainbow. For these improvements a total of $138.6M is being requested.

I would like to now provide the committee substantive support and rationale for each of the programs in our budget request.

PATRIOT is an advanced surface-to-air guided missile system capable of operating in a severe electronic countermeasures environment. It uses a multifunction phased array radar to perform surveillance, acquisition, and guidance tasks in directing a battery of eight launchers armed with four ready missiles each. United States Army Nike Hercules units were inactivated beginning in 1985 and HAWK is being redeployed as PATRIOT is fielded. The Army intends to procure a total of 103 PATRIOT fire units and 6452 missiles.

The Army is continuing to field PATRIOT battalions in Europe. To date six PATRIOT battalions have deployed to Europe, a seventh European battalion is being formed and three battalions have deployed in CONUS. PATRIOT has performed well beyond expectations in the field, it continues to exceed reliability requirements by a wide margin.

In FY 90, PATRIOT will enter its eleventh year of production. This year's procurement request of $924.5M represents the fourth year of a five year multiyear contract which will save the United States in excess of $445M compared to a single year procurement strategy. The FY 90 request will buy three fire units and 815 missiles.

Our Allies continue to be great supporters of the PATRIOT System. The Netherlands became the first NATO country to procure PATRIOT when they signed a Foreign Military Sales (FMS) agreement in 1984. They are procuring four fire units. The first three of these fire units have already been delivered; the fourth will be delivered this year.

In December 1983, the United States and Germany signed an agreement on cooperative measures for enhancing air defenses for Central Europe. An implementation agreement was signed in July 1984 and was approved by Congress and the German Bundestag. Under this agreement the US provides 14 fire units; in return, Germany procures 14 PATRIOT fire units and 27 Roland fire units for defense of air bases. Germany will also provide manning and support for the Rolands and the 12 PATRIOT fire units for a ten year period. Finalization of this agreement was achieved in 1986 when the Germans signed an FMS case with the United States to buy the 14 PATRIOT fire units. Delivery of the Roland fire units and PATRIOT fire units began in FY 87 and will continue through CY 92. The first deployment of a German PATRIOT tactical fire unit will occur this year.

Japan has also selected PATRIOT to modernize its air defenses. The Japanese have formally approved an agreement for licensed production of 26 fire units.

Other nations such as Korea and Belgium continue to show strong interest in acquiring the system.

In March 1988 Italy and the US signed a Memorandum of Understanding on Cooperative measures for enhancing air defense in Italy; the implementation agreement is currently being negotiated. In this agreement, the US will provide funding for the PATRIOT ground equipment. Partial funding of $250M is contained in the FY 90 request. An additional $250M is being requested in FY 91. In return, Italy will provide the short range air defense of US bases in Italy.

The Multiple Launch Rocket System (MLRS) will begin its eleventh year of production in FY 90. The program is on schedule, within approved costs, and has achieved all established technical milestones. The Army continues to take pride in this program's success.

The system supplements the cannon artillery available to division and corps commanders and satisfies an urgent need in the fire support mission area. MLRS provides an all-weather, indirect fire system for delivery of its devastating firepower. In less than one minute twelve rockets can be launched from a single launcher against enemy artillery, air defense sites, and other light materiel and personnel targets, such as assembly areas and command posts. The rocket system also has growth potential to deliver the terminal guidance warhead (a terminal-homing, fire-and-forget warhead capable of defeating moving and stationary enemy armored vehicles), a scatterable antitank mine warhead, a SADARM warhead for counter fire, and a binary chemical warhead.

The first tactical MLRS battery was operational in March 1983 with Fort Riley's 1st Infantry Division. The first European battery was deployed in September 1983 to the 8th Infantry Division in Baumholder, Germany. Thirty batteries have been fielded to date including six POMCUS sets. Four batteries are being fielded in FY 89, three of these being deployed with the Army National Guard. Three additional batteries will be fielded in Europe in FY 90.

The MLRS is an international cooperative program. A Memorandum of Understanding (MOU) was signed with Germany, France, and the United Kingdom in July 1979. Italy was admitted as an associate member to the basic program in July 1982. The objective is to achieve required operational capabilities for participating nations while avoiding costly duplicative programs; the program is progressing satisfactorily.

The FY 90 request of $314.8M will buy 24,000 rockets and 38 launchers to support deployment.

Additionally, we are requesting modification funds of $28.6M in FY 90 to modify current MLRS systems to continue launcher loader improvements started in FY 88 to fire the ATACMS as well as the smart munitions previously mentioned. On 29 November 1984 a development contract was signed with the United Kingdom, France and

Germany to co-develop the Terminal Guidance Warhead (TGW), the Army's first co-development program. This warhead will be mated to the MLRS rocket and fired from the MLRS launcher. This joint venture has as principal contractors Martin-Marietta of the United States, Diehl of West Germany, Thorn EMI of the UK, and Thompson-Brandt Armaments of France; collectively the developer is known as MDTT. TGW is currently in the component demonstration sub-stage and transitions to system demonstration later this year. Co-development costs are shared - the US pays 40 percent and each of the other participating nations pays 20 percent.

HELLFIRE is a laser guided antitank missile capable of employment both in direct and indirect fire modes. It has been in production since FY 82. The HELLFIRE missile was fielded coincidentally with fielding of the Apache in April of 1986. Its targets can be laser designated by the launching Apache, another Apache, a scout helicopter, or by a ground laser designator. The flexibility offered by HELLFIRE increases survivability of the Apache and at the same time provides high enemy armored vehicle kill rates.

The HELLFIRE is being procured using a dual source competition strategy; Martin-Marietta and Rockwell compete annually for a percentage of the procurement. The FY 90 request for $138.3M buys 3102 missiles and represents the eighth year of production. The missiles being procured in FY 90 feature an improved tandem warhead which defeats evolving enemy threat armors. The tandem warhead with its improved lethality keeps it effective throughout the next decade. HELLFIRE is central to the Aviation anti-armor role.

STINGER is a shoulder fired, manportable air defense system that provides combat units protection against air attack throughout the battle area. STINGER uses a passive infrared homing seeker to guide on the target. Initially fielded in 1981, the system replaces the Redeye, which was fielded in 1966. STINGER provides the capability to engage targets from all angles, at extended ranges, and uses an electronic means to identify friends from foes (IFF).

Two updated models of the STINGER have been developed; STINGER-POST (Passive Optical Seeker Technology) and STINGER-RMP (Reprogrammable Microprocessor). The former gave us increased performance in countermeasure environments and was fielded in 1987. STINGER-RMP uses state-of-the-art technology and not only performs effectively in known countermeasure environments, but features a reprogrammable module in gripstock which has the capability of being adapted to evolving changes in threat aircraft infrared countermeasures. These adaptations are made in the software, thus negating a requirement to make hardware changes as the threat evolves.

The FY 90 request of $187.5M buys 4754 STINGER-RMP missiles. In past years, General Dynamics was the sole STINGER producer; however, we have recently developed Raytheon as a second source. The FY 90 procurement will be limited competition between these two manufacturers with the quantities split based on price and each contractor being assured production at MSR.

CHAPARRAL is an Air Defense missile system that has been continually upgraded since it was first fielded in 1969 and continues to be a mainstay in the active Army and National Guard. CHAPARRAL provides general air defense protection for divisions, corps and theater rear areas, and point air defense for key US air bases in Europe. To keep CHAPARRAL current against the threat, a series of product improvements has greatly enhanced its performance and its survivability. The most recent improvement, the Rosette Scan Seeker (RSS) missile, was type classified standard in November 1987. This improvement extended the range, of the missile by 50 percent and significantly increased its performance in a countermeasure environment. Another significant improvement that has been deployed was the Smokeless Rocket Motor (SRM) that increases crew survivability by elimination of smoke trail and also allows the gunner's vision to be uninhibited by smoke. These product improvements extend the role and make the CHAPARRAL air defense system effective into the year 2000.

In FY 90 we are requesting $30.8M to purchase 422 CHAPARRAL missiles. These will all be the RSS model and will be procured competitively from Hughes Aircraft and Ford Aerospace.

The TOW is the Army's heavy anti-armor/assault weapon system. It is deployed in infantry, light infantry, mechanized infantry, air assault, airborne and armored cavalry units. TOW consists of a launcher, missile guidance set, day and night sights, and ground support equipment for maintenance, test, and training. TOW is capable of operation from the ground, vehicles and helicopters for effective performance against tanks, fortifications and other targets. It is mounted on the M901 Improved TOW Vehicle, the M113 Armored Personnel Carrier, the Bradley Fighting Vehicle, the HMMWV and the COBRA. Important features include mobility and simplicity of operation. The ground launcher can be hand carried for short distances by its four man crew to different firing positions to minimize crew detection. The system can engage targets in all battlefield conditions the targets can be seen by the operator using either an optical or thermal imaging night sight.

Since its initial introduction, TOW has been effectively product improved to keep pace with the Soviet threat. The current production version, TOW 2A, represents the fourth generation system having much improved lethality. This version was phased into production in FY 87. The TOW 2A has now been fielded to units in Europe. The TOW 2B missile, which improves system lethality even further, is in development.

Our FY 90 procurement request is $114.7M for 9455 TOW 2A missiles, plus night sights and other ground support equipment. Included in our missile modifications request is $59M for TOW modifications of which a significant amount converts TOW 2 missiles to the TOW 2A configuration.

We will continue to develop a second production source for TOW missiles. This effort begins in FY 89 with a learning buy of 300 missiles from a second source followed by a 3000 missile second source procurement in FY 91; this establishes the basis for competitive procurements in FY 92.

Another critical Fire Support program in our missile procurement request is the Army Tactical Missile System (ATACMS). It is a conventional semi-ballistic missile to attack enemy second echelon forces. The ATACMS will be fielded initially with the M74 anti-personnel/anti-materiel (AP/AM) warhead to attack soft targets such as air defense sites, assault formations, command, control and communication centers, Forward Area Refuel-Rearm Points (FARPS), and threat missile delivery systems. ATACMS will be fired from a modified version of the M270 Multiple Launch Rocket System (MLRS) Self-Propelled Loader Launcher. By using the MLRS launcher, ATACMS will provide a significant additional capability to MLRS units without requiring more force structure. All US MLRS launchers will be capable of firing ATACMS. The ATACMS will have growth potential to accommodate future warheads with smart submunitions to attack second echelon moving armored vehicles and other high value targets.

We are requesting $140.9M for procurement in FY 90 to purchase 276 missiles and support the fourth quarter FY 90 fielding.

Over the years the Army's most difficult air defense problem has been our inability to field systems to cope with the total threat to our forward forces. After the Division Air Defense Gun program was canceled in August 1985, the Army conducted a comprehensive study of the problem. The study determined that no one system alone could defeat the entire array of missile firing helicopters and fixed wing aircraft attacking our front line troops. The study determined that a set of complementary systems would be needed to deny the enemy a preferred attack option. The study further determined that certain hardware already programmed for acquisition by the Army could be melded together with other hardware requiring minimum development to achieve an integrated system approach to defeat the threat.

The Forward Area Air Defense (FAAD) System brings together the necessary components required to provide protection to our forward forces in the future.

The FAAD System integrates five complementary systems. These are: Line of Sight Forward-Heavy System, Line-of-Sight Rear System, Non-Line-of-Sight System, certain Combined Arms Initiatives and a Command, Control and Intelligence System. While each system features unique capabilities, each is inseparable from the total FAAD System.

Off-the-shelf equipment and technology are available, in some cases, to meet the FAAD System component requirements. To acquire this total system at the lowest possible cost, a nondevelopmental item (NDI) approach is being used where possible.

To ensure these NDI systems meet technical and performance requirements, rigorous test programs are scheduled, for each FAAD weapons component. These programs include early soldier involvement, provide for lessons learned to be incorporated in the systems' developmental/production processes, and assure reliable data is available to support the production decisions.

The Line-of-Sight-Forward-Heavy (LOS-F-H) System will be employed in the close combat zone of the Heavy divisions. The system is designed to kill enemy fixed wing aircraft and helicopters, in clutter, out to six kilometers. It is capable of operating at night, in adverse weather, and in the presence of intense countermeasures as well as in a dirty battlefield environment.

A nondevelopmental item, the Air Defense Anti-Tank System (ADATS), was selected in November 1987 as the Line-of-Sight-Forward-Heavy component of FAADS. FY 88 advanced procurement funding ($33.5M) combined with FY 89 procurement funding permits purchase of 5 ADATS for testing and operator training; these systems will eventually become part of the fielded ADATS fleet.

The FY 90 request of $403.2M purchases 18 ADATS fire units and 424 missiles, and also funds long lead items to support FY 91 fire unit and missile procurements. The first unit equipped date for ADATS is projected to be third quarter FY 92 with priority of fielding to the 3D Armored Cavalry Regiment, at Fort Bliss, Texas followed by 1st Air Cavalry Regiment, at Fort Hood, Texas then to divisions in Europe.

The Non-Line-of-Sight (NLOS) System will be deployed near the forward line of troops but masked from visual detection by the enemy. This weapon will give us the capability to defeat helicopters and tanks that are masked from direct firing weapons by hills and trees.

The Fiber Optic Guided Missile (FOG-M) has been selected as the NLOS System. FOG-M is a precision guided missile developed in-house by the Research, Development, and Engineering Center of the Army Missile Command. It uses either an imaging infrared or TV seeker for target acquisition. The target image is transmitted from the missile to an operator through a fiber optic data link. Steering signals are sent back through the link to control missile flight to the target. In addition to its air defense capability, FOG-M will be able to kill stationary or moving armored vehicles. FY 90 RDT&E funds will allow us to continue Full Scale Development of the advanced FOG-M system which has extended range, and the capability to operate at night and in adverse weather. In FY 90, $32.5M advanced procurement funds will be used to purchase long lead items in support of the low rate initial production that starts in FY 91.

The Line-Of-Sight Rear (LOS-R) component of the FAAD System is better known as Pedestal Mounted STINGER (PMS). This component will be the most proliferated FAADS weapon and will be deployed in the rear of maneuver brigades and in the division and corps areas. PMS has eight ready-to-fire STINGER missiles mounted on a High Mobility Multipurpose Wheeled Vehicle (HMMWV). This system improves upon the man-machine interface problems which exist with the manportable STINGER. Further, the inclusion of direct view optics, a forward looking infrared sensor, and a laser range-finder, gives the gunner the ability to maximize the STINGER's engagement capability. Existing STINGER missiles can be fired from the PMS System without modification. PMS will kill fixed-wing aircraft and helicopters. Because of its employment, mostly in rear locations, the system requires less mobility and armor protection than other FAAD systems that fight within range of enemy direct fire weapons. The first year of production for PMS was FY 87; it is currently in its third year of low rate initial production. Upon completion of Initial Operational Test and Evaluation this year, PMS will enter full scale production in FY 90. Our FY 90 request is for $115.8M and 122 fire units.

The other components of the FAAD System, the Combined Arms Initiatives and FAADS Command and Control are requested and funded in the Army Aviation, and Other Procurement Army accounts.

The FY 90 request also includes $33.3M for procurement of air defense targets and ground support systems. These targets will be used for training of Air Defense personnel.

Mr. Chairman, the Army solicits you and your committee's continued support in providing the best war-fighting equipment to our soldiers in the field.

PATRIOT MISSILE

Mr. **Murtha**. Let's move into missile procurement. General Chen, you have a classified statement which will be retained in the Committee's files. We'll now proceed directly to the questions.

The fiscal year 1990 budget includes $924 million for the Patriot missile program. Included in the total is a $248.3 million non-recurring expenses for something labeled the "Italian Case."

What is that?

General **Chen**. That $248.3 million is part of an agreement that the DOD has with the Italian Ministry of Defense to provide Patriot systems for Italy. Part of that agreement is that the United States will provide the Italians with 20 Patriot radars, 20 fire control stations, and 4 Patriot fire distribution centers. Italy will produce 160 launchers and 1,280 missiles for the Patriot firing units. The $248.3 million in fiscal year 1990 begins that buy of Patriot.

In turn, Italy will procure and man four SPADA missile systems to provide air defense for four U.S. bases in Italy, including two naval bases, an Air Force base, and an Army installation; Italy will also provide point defense for those air bases.

Mr. **Murtha**. What are the four bases?

General **Chen**. The four bases are Sigonella Naval Base, Augusta Bay Naval Base, Aviano Air Base, and Camp Darby.

Mr. **Murtha**. How are they protected now?

General **Chen**. They currently don't have any air defense.

Mr. **Murtha**. Is this a priority for the Navy?

General **Chen**. It is the first priority to the Navy since two of the bases are naval bases. The other bases are an Air Force Base and one Army installation.

Mr. **Murtha**. I had heard this money may come out in the Bush budget amendment. Is this something you have heard also, that the Patriot money has fallen by the wayside at this time? I hear it is not a big priority with the services.

General **Chen**. With this particular Italian amount of $248 million, that is not currently under any discussion of coming out. That was an agreement based upon initiatives from Secretary of Defense Weinberger and also Secretary of Defense Carlucci. Currently, it is not part of any——

Mr. **Murtha**. Is this a high priority with the services? Is this a priority with the Navy or anybody else?

General **Chen**. It is not the highest priority in the Navy. This has been an initiative of the DOD.

Mr. **Murtha**. Now, the warhead price went up about 45 percent. What happened there?

General **Chen**. That is because in our fiscal year 1990 budget request, we are buying what is known as the Patriot anti-tactical missile capability which incorporates a new warhead and also a new fuze. So the costs associated with fiscal year 1990 compared to previous years includes incorporation of a new warhead and a new fuze to provide that anti-tactical capability.

STINGER MISSILE

Mr. **Murtha**. Let's go to the Stinger missile. What happened to the program?

General **Chen**. Currently, the Army has not accepted any of the missiles, the Stinger Reprogrammable Microprocessor Missiles produced by General Dynamics.

The reason that the Army has not accepted these is because they are not meeting the specifications. The problems we have had with Stinger were experienced in the test program for the Stinger Reprogrammable Microprocessor Missile where against fixed-wing capabilities, against the fixed-wing aircraft threat they have met the requirements, but ———.

Mr. **Murtha**. Why wasn't the problem detected earlier in the test program?

General **Chen**. The testing has been ongoing. The testing experienced those problems ———.

Mr. **Murtha**. This was a program that was supposed to be a model program and all of a sudden we are storing them because they are unacceptable. What happened? Obviously somebody is at fault here.

General **Chen**. The contractor in terms of the version of the missile known as the RMP or Reprogrammable Micro-Processor missile has not met the requirements in the test.

Mr. **Murtha**. Are you saying you didn't thoroughly test them or exactly what happened here?

General **Chen**. We have thoroughly tested them. Based upon the testing is where we found that the specifications were not met.

Mr. **Murtha**. Who is going to pay for the stored missiles?

General **Chen**. The Army has made progress payments toward the missiles so the Army has not paid fully for those.

If based upon testing we find that the contractor has a fix and based upon incorporating those fixes then the Army will pay for those.

Mr. **Murtha**. Is this something you changed specifications for or is this something that the contractor is not meeting the original specification on?

General **Chen**. The contractor is not meeting the original specifications.

Mr. **Murtha**. How much money have you paid him and how much money is left to the contract here?

General **Chen**. The RMP contracts in fiscal years 1985 through fiscal year 1988 procure Stinger missiles for all the Services. We have obligated $889.8 million. Of that, we have only paid $335.5 million. So in terms of actual disbursements for those fiscal years, we have paid out $335.5 million which essentially is for progress payments.

Mr. **Murtha**. What did you get for your $335 million?

General **Chen**. Right now we haven't bought anything because we haven't accepted the missiles and we will not accept the missiles until they meet the specifications.

So from the Army standpoint, we chose not to buy a product that didn't meet the specifications. In other words, we are holding the contractor——

Mr. **MURTHA**. But, you have already paid them a third of a billion dollars.

General **CHEN**. We have paid them, but that is in accordance with the contract toward progress payments.

Mr. **MURTHA**. That gets back, it seems to me, to the testing. If they were meeting the original specifications and you were making these progress payments and you have paid them a third of a billion dollars already, that would be one thing. But you haven't accepted any of the missiles; where are we?

General **CHEN**. You predicated in your last statement that they are meeting the specifications, but that indeed is not the case.

Mr. **MURTHA**. Then how could you have paid them progress payments if they weren't meeting the specifications?

General **CHEN**. The progress payments were based upon their performance of the contract. We make what is known as progress payments, but we don't make the final payments until the product is formally accepted by the government.

Mr. **MURTHA**. But you have some kind of quality control personnel in this plant and they have met the quality control specifications, I assume.

General **CHEN**. Right.

Mr. **MURTHA**. And so what happened all at once with these tests? This was a model program.

General **CHEN**. The problem is not in quality. The problem is in performance and the performance we determine based upon the testing. So it is the output of the test program where we found the deficiencies and as a result we have not accepted the missiles.

Mr. **MURTHA**. It is not as if we are paying R&D costs. We are paying progress payments on a contract and you have got these on the shelf and they don't work. Something is wrong with our system. Maybe you ought to get someone else in there to run this system. There is something wrong with this system when you are paying out that kind of money and the missiles don't work. You had to have tested it before you bought them and if they are meeting the specifications, how can you all at once say they are not working?

CONCURRENCY IN STINGER RMP PROGRAM

General **CHEN**. The program itself was a concurrent program; concurrency in development as well as production. So it was a result of the performance against the R&D contract and in the testing that we determined they were not meeting the specifications.

Mr. **MURTHA**. You are putting yourself and us in a very difficult position. You are saying that either you are going to allow them to go forward with a missile which doesn't work, which I assume you are not going to do; but the pressure is going to be so great because you are responsible for the program or the Committee is going to have to pay out money for a program that has to be fixed. I just can't follow how we can allow a program to go this far with this kind of money involved in it and not know about it earlier?

General **CHEN**. It is based upon the testing that we determine what the RMP missile cannot do.

Mr. **Murtha**. But, General Chen, it is based on the testing and how all at once did it not work? If the testing was satisfactory that you could go forward with the program and you have been paying $335 million to them, what happened in this interim period that you weren't accepting them?

Are they not meeting the specifications?

General **Chen**. That is correct.

Mr. **Murtha**. So, in other words, the original test vehicle worked?

General **Chen**. There was no original test vehicle in the sense that it was based upon the development testing that took place that we fund that its performance was lacking. But we are also talking about a capability in this missile that far exceeds what we currently have in basic Stinger and also the Stinger POST version.

Mr. **Murtha**. You are saying to me, "Well, we can work this thing out with them and it may not be what we want," because you are on the spot, because you have already spent $335 million for a missile that you consider doesn't work. This thing either worked when you tested it or it didn't work.

General **Chen**. That is my point; that it did not work when we tested it.

Mr. **Murtha**. Yet we spent $335 million in the meantime.

General **Chen**. The missiles that are stored by the contractor, and its performance exceeds the current performance of the basic Stinger. It exceeds the current performance of the Stinger POST.

What we are asking for is their meeting the requirements against the advanced infrared countermeasures threat. If we had to go to war today, we could make use of those missiles and it is better than any other missile in the world.

Mr. **Murtha**. There is something wrong with a program where we pay out this kind of money and we don't know whether the thing works at this point in the game. This is a big-buck item here.

General **Chen**. But we are asking for it to meet the performance of the advance countermeasures threat——

Mr. **Murtha**. So who is going to pay for these changes in the system?

General **Chen**. The contractor will pay for those changes pertaining to the RMP where their estimate is it is a software change. They will make that fix and we will test that fix——

Mr. **Murtha**. I tell you, General, we are running into more and more software problems. That sounds like an easy problem to fix, but we are running into big software problems, and it worries us. Witnesses say to us almost in a cavalier attitude, "Well, it is a software problem." I used to think a software problem wasn't a big problem. Is this a big problem that can be fixed or cannot be fixed?

General **Chen**. We expect that it will be fixed and that is why we have a test program. In fact, we have a test program that starts this month that will last through April, May and June to verify the fixes.

Mr. **Murtha**. Did we make a mistake in giving you the money to go forward with the program before you had tested the missile? Now we are buying the missile as we are testing it. Did we make a mistake in doing that?

General Chen. In restrospect, where this program was a concurrent program in development and procurement, where procurement was initiated prior to full testing, and where the contractor estimates were more optimistic than what they were able to deliver, perhaps a mistake was made in too much concurrency on this program.

Mr. Murtha. Is this going to cost us more money to fix it or is the contractor liable to fix it?

General Chen. The contractor is liable to make those fixes to the RMP module.

Mr. Murtha. We want you to keep us advised about this program because we depend on you to make sure that this money is spent the right way. We don't have the technical ability to evaluate these programs and it makes me wonder if some of these other programs are going forward in the same way, if we aren't going to have problems.

The B-1B was a little bit like this. We started building them and everything fell together and now we are having what I consider major problems with the B-1 that can probably be fixed, but will cost us some money.

Mr. Murtha. Mr. McDade?

HAWK MISSILES

Mr. McDade. Thank you, Mr. Chairman.

Let's talk about the Hawk missile. In fiscal year 1988, the Congress approved a four-year multiyear procurement of Hawk missiles for the Marine Corps. The Marines bought a total of 992 missiles in 1988 and 1989.

Now, however, the 1990 budget proposes no Hawk buys for the Marines, but buys of 358 missiles for the Army for each of fiscal years 1990 and 1991. Did the Army Program Objectives Memorandum for 1990 make any provision for Hawk missile procurement?

General Chen. In our Program Objectives Memorandum, POM, we did not.

Based upon a review that the Office of the Secretary of Defense made of the Marine Corps requirements as well as a relook at the Army requirements, the Office of the Secretary of Defense provided to the Army the funding for the 1990 and 1991 budget that currently is before this Committee.

Mr. McDade. We would like to have some figures on your on-hand inventory status as of the end of fiscal year 1989. Please tell us what the numbers are in whole numbers and the percentage of the Army Acquisition Objective.

You may provide that for the record.

General Chen. Yes, sir.

[Clerk's note.—Classified insert removed.]

Mr. McDade. We also want the same information for the Marine Corps.

[The information follows:]

The Marine Corps will have 3,839 HAWK missiles on hand when the missiles procured in FY 1989 are delivered. This quantity is 90 percent of the Marine Corps Acquisition Objective for HAWK.

Mr. McDade. Provide a list of Army and Marine Corps missile programs which have lower percentage of on-hand inventory compared to inventory objectives.

Put that in the record.

[The information follows:]

The following missile programs will have on hand quantities that are less than 100 percent of the Acquisition Objective (AO) at the end of the FY 1989 funded delivery period.

Service and Program:	*Percent of AO*
Army:	
Chaparral	37
Hawk	[Deleted]
Hellfire	47
MLRS	48
Patriot	65
Stinger	19
Tow 2/2A	12
USMC:	
Dragon	83
Hawk	90
Stinger	93
Tow 2/2A	36

Mr. McDade. What termination costs would be incurred if the multiyear contract were cancelled?

General Chen. The fee would be $12.4 million.

Mr. McDade. Is that the total cost?

General Chen. There would be some adjustments required for the prior years, fiscal year 1988 and fiscal year 1989, but the $12.4 million would take care of the termination.

Mr. McDade. What would the total costs look like? In other words, you say there is $12.4 million in termination costs. Are there any other costs?

General Chen. There might be some costs that back up into the prior years. I don't have that at this time.

Mr. McDade. Put that into the record.

[The information follows:]

A cancellation fee of $12.4 million would be incurred in FY 1990. In addition, settlement on $58.6 million worth of Economic Order Quantities, procured in FY 1988 and FY 1989 with Marine Corps funding, would have to be negotiated with the contractor. The government would receive the funding that the contractor had not yet expended on materials. The amount of this funding would, depend on the actutal date of cancellation. Disposition of the materials that the contractor had already procured would require negotiation.

Mr. McDade. Is there a use for Hawk missile parts that have been previously purchased in economic order quantities under the multiyear contract?

General Chen. Those previously purchased would have to be looked at item by item for use.

Mr. McDade. So they may not be totally useless to us?

General Chen. They would be useable, but not 100 percent.

Mr. McDade. What percent would be useable?

General Chen. I don't know.

Mr. McDade. Above or below 50 percent?

General Chen. Probably above 50 percent.

FIBER OPTIC GUIDED MISSILE (FOG-M) PROGRAM

Mr. McDade. Let's talk about FOG–M.

Initial procurement of the non-line-of-sight portion of forward area air defense system, also known as the fiber optic guided missile, occurs in fiscal year 1991. Advance procurement funding of $32.5 million has been requested in 1990 to support the 1991 buy. Please explain your schedule.

General CHEN. Our schedule for the Non-Line-Of-Sight System is that it is currently in full-scale development. That development contract was signed in December of 1988.

As part of that development program, we will have an engineering design test conducted by the contractor and a government operational assessment. Based upon the completion of that engineering design test and the government operational assessment, we will make the decision then for the fiscal year 1991 procurement, and so it is contingent upon successful operational assessment.

Mr. McDADE. When do you hope to have your low-rate initial production decision? Do you have an idea for that?

General CHEN. That would be roughly in July of 1991 upon completion of those tests.

Mr. McDADE. Tell us when you hope to obligate the 1990 advance procurement funding that you are asking for.

General CHEN. Fiscal year 1990 would be obligated in the third quarter of fiscal year 1990.

Mr. McDADE. How far through the 43-month development phase will you be when you obligate the advance procurement funding?

General CHEN. We would be roughly 40 percent through that phase.

Mr. McDADE. How many missile tests will you have had by that time?

General CHEN. We will have a combination of missile firings from our initial operational evaluation and our extended user employment, which are part of the pre-FSD effort that we have.

Mr. McDADE. Do you have a total number of tests that you will have done?

General CHEN. I would like to provide that for the record.

[The information follows:]

Twenty missiles will have been fired during the Initial Operational Evaluation (IOE) and Extended User Employment (EUE). These firings will utilize a MICOM lab prototype FOG-M missile. At the time of the FY 1990 Conventional Systems Committee (CSC) no missiles from the contractor's full scale development (FSD) effort will have been fired. However, testing of the FSD missile components will be underway. During the Engineering Development Test—Contractor/Government Operational Assessment (EDT-C/GOA) 20 FOG-M firings are planned, ten with TV and ten with IR seekers. These firings will be accomplished prior to the low rate production decision in FY 1991.

Mr. McDADE. Tell us what milestones, such as conventional systems committee reviews or operational test and evaluation assessments that you have to achieve before you begin to obligate procurement funds.

General CHEN. We will have to have a conventional systems committee review prior to obligation of the fiscal year 1990 procurement. That will be predicated on an early operational assessment conducted by the Director of Operational Test and Evaluation, and so there will be a conventional systems——

Mr. McDADE. Any besides those that you have mentioned?

General **Chen**. Prior to the conventional systems review, we will have an Army Systems Acquisition Review Council (ASARC) review.

Mr. **McDade**. Your previously reported schedule called for developmental test and evaluation to last from October 1990 to May 1992. The revised schedule starts November 1990 and ends July 1991, a compression of eight months, or nearly 50 percent.

How do you justify this and assure that a good test program will be accomplished? Why the big rush?

General **Chen**. In fact, in the previous milestone, we included as part of the development effort what was known as system qualification.

In the current schedule, we show system qualification as a separate phase after the development test and evaluation. And so we expect to make the production decision, the low-rate production decision, upon completion of that engineering design test and the government operational assessment.

The system qualification effort is more a total qualification of the two contractor teams that are in the development phase. That is more to get them ready to compete for the production contract.

Mr. **McDade**. Your testimony is that you are really putting the pressure on the contractors to try to produce here?

General **Chen**. What I am saying——

Mr. **McDade**. I am trying to ask you to give the Committee the assurances that despite the compression of the time you are going to have a very good test program. That you are going to make sure that we are not rushing through this program; we had a previous discussion about what that can produce.

What kind of assurances are you able to give us that you are going to have the program fully tested under that squeeze in the schedule?

General **Chen**. The amount of testing has not changed in the previous estimate of the schedule versus the current schedule.

Mr. **McDade**. So none of the compression of the schedule involves testing out the units?

General **Chen**. Right. There has been no change to that test so the criteria will be the same. It is a matter of definition of what we had previously reported as a system qualification phase.

Mr. **McDade**. Thank you, Mr. Chairman.

Mr. **Murtha**. Mr. Sabo?

ARMY TACTICAL MISSILE SYSTEM

Mr. **Sabo**. Thank you, Mr. Chairman.

The budget includes $141 million in fiscal year 1990 for procurement of ATACMS. What is the current thinking within the Army about development of nuclear ATACMS as a replacement for the Lance short-range nuclear missile?

Does the Army intend to seek relief from the current ban on development of nuclear ATACMS?

General **Chen**. We do not see a relationship of a nuclear ATACMS as part of a Follow-On to Lance—FOTL—program. In fact, for our Follow-On to Lance program, it is a competitive program where we will have solicitations from various contractors for them to propose systems. So we have not made a selection of an ATACMS nuclear version to be the Follow-On to Lance system. Based upon the fact that we do not have a nuclear ATACMS, then we see no need to seek any legislative relief since we don't have a nuclear ATACMS.

Mr. SABO. So you do not intend to seek change in that provision?

General CHEN. No.

Mr. SABO. Other than nuclear ATACMS, what systems are being considered for the Lance replacement and has the Army reviewed the idea recently floated by Secretary of State Baker that NATO should deploy the air-launched short-range attack missile as a Lance replacement?

General CHEN. Right now the Army has not reviewed that proposal. For the Follow-On to Lance program that the Army has, we do plan on a solicitation asking contractors to respond.

We have not released that request for proposal yet and so we do not know specifically which contractors plan to respond.

Mr. SABO. If the Lance replacement is some system capable of being fired by the multiple launch rocket system, would the Army need to procure additional MLRS' and fire units for use during conventional conflict?

General CHEN. No. We would not need specific increases of MLRS launchers to perform the Follow-On to Lance mission. However, as part of other fire-support initiatives to enhance conventional fire support capabilities, we do have some plans that would require additional MLRS launchers. This includes replacing the Lance force structure with MLRS battalions.

Mr. SABO. For reasons other than the Lance follow-on?

General CHEN. For reasons other than a Lance follow-on.

Mr. SABO. If it is an MLRS launch system, does that decrease your conventional ability to use that system at all?

General CHEN. It becomes a question then of target allocation for the use of those launchers. We have MLRS launchers that have the capability to fire the basic MLRS, the ATACMS and we have other systems that make use of the MLRS Launchers.

At the same time, once we have the Follow-On To Lance missile, then we know that we will have to allocate MLRS launchers to perform that mission once nuclear release is granted.

But, at the same time, it will be dual capable in the sense that those MLRS units will be able to fire not only the nuclear Follow-On To Lance when nuclear release is granted, but the conventional munitions that MLRS can fire. MLRS launches would be fully available to five conventional munitions both before and after nuclear release is granted.

Mr. SABO. What is the time sequence involved in getting them ready for one function versus another function?

General CHEN. Right now we don't have the specifics on the Follow-On To Lance system, so I can't give you a good answer on that. But to perform the fire mission, we would expect that it can be done in a timely fashion.

Of course, in the case of nuclear fires, we would also make use of pre-planned fires where, by virtue of the pre-planning, we can reduce the time line that is required.

Mr. SABO. Let's see if I can rephrase the question to get at—within your current systems, suppose you fired an MLRS.

What kind of time sequence until it can be reuseable?

General CHEN. It is of the order of ten minutes or less. An MLRS system has a capability to pull into a firing position to fire its munitions and then move out in less than ten minutes.

Mr. SABO. And move out—what do you mean by that?

General CHEN. Move out meaning move out from the firing location, from the launch points.

Mr. SABO. My question is how soon would it be ready to fire again?

General CHEN. It depends on the availability of the rockets, because once they expend the rockets, they would have to reload. They would have to go to a reload point and reload and then launch again.

Mr. SABO. How long is that sequence?

General CHEN. I don't have that. I can provide that information for the record.

[The information follows:]

It takes less than ten minutes to reload the launcher.

Mr. SABO. What I am curious about is you agree that if that firing system is used for Lance follow-on, to what degree does that reduce your conventional ability——

General CHEN. Well, the units that would fire Follow-On To Lance could be dedicated after nuclear release because they are performing the Follow-On To Lance nuclear mission, and at the same time, since these are assets that are dual capable, they will be available for conventional fires until nuclear release is granted.

[The information follows:]

Fielding Follow On To Lance does not reduce our conventional capability. In fact, by replacing the Lance with a system that is fired from the MLRS launcher, the Army will actually be increasing its conventional capability.

By the year 1994, the U.S. Army will have four Lance battalions and one battery with a total of 50 launchers. NATO, including the forward deployed U.S. forces, will have a total of 88 launchers, dedicated to nothing but firing nuclear Lance. The force structure we will save worldwide by replacing Lance with a missile fired from the MLRS launcher will enable us to field an additional four battalions of MLRS. Each of those MLRS battalions will have 27 dual capable launchers.

Whereas those Lance units will be contributing nothing to the conventional fight, the additional MLRS units will each be available to fire the conventional munitions that MLRS can fire until nuclear release is granted. Furthermore, since each MLRS launcher can carry two nuclear missiles, versus one for the Lance launcher, you can see that a significant number of those additional launchers will remain in the conventional fight even after nuclear release.

The bottom line is that we significantly increase our conventional capability, and hence raise the nuclear threshold, with no increase in force structure by converting from Lance to a Lance follow-on fired from the MLRS launcher.

Mr. SABO. I would assume that if that is what they were ready to do, that would be a reduction in your conventional fire power.

General CHEN. Absolutely, because if they fire the nuclear mission, then that reduces the time allocation to fire the conventional missions.

Mr. SABO. Therefore, I would assume that if that were the fire system to be used for a Lance follow-on, you would need or want additional launchers for your conventional capability, or else wouldn't it be accurate to conclude that using it for a Lance follow-on would really reduce your conventional ability?

General CHEN. Right. It could be, yes, once nuclear release is granted.

[Additional information follows:]

However, as I pointed out earlier, the manpower savings that can be achieved by replacing Lance will enable the Army to field additional MLRS launchers in Europe that will create a significant increase in U.S. conventional capability. These are additional launchers that would not be available if we continue Lance or if we adopt a unique launcher for the Lance follow-on. All of these launchers will be available to fire Follow On To Lance.

The Army and OSD have thoroughly reviewed this decision from both the cost effectiveness and manpower effectiveness point-of-view and concluded that using the MLRS launcher for Follow On To Lance yields the greatest tactical advantage, both nuclear and conventional.

Mr. SABO. Thank you.

Thank you, Mr. Chairman.

FIVE TON TRUCKS

Mr. MURTHA. General Rigby, let's talk about five ton trucks. As I understand it, we have a five-year multiyear contract. You convinced us that the program was so important that a five-year multiyear contract for the five-ton trucks was justified. Is that right?

General RIGBY. Yes, sir.

Mr. MURTHA. You were going to buy over 16,000 trucks.

General RIGBY. That is correct.

Mr. MURTHA. According to the contract, about 6,000 trucks were supposed to be delivered by March 1989.

General RIGBY. Yes, sir.

Mr. MURTHA. And to date, how many have actually been delivered?

General RIGBY. Sir, we have accepted so far 604 trucks.

Mr. MURTHA. What is the problem?

General RIGBY. Sir, the initial problem was the installation of a quality assurance MIL standard system in the BMY plant, and bringing on a new and responsive subcontractor base.

We have gone through a complete review of the plant in the fall of last year. We also put into effect a schedule C, which is initially stopping progress payments until most of the recommendations of that review have been completed.

BMY has made those corrections. We feel now that they are ready to move into full production as soon as the oversight report is forwarded to Congress by Mr. Krings, and IPT is completed.

Mr. MURTHA. How much money do you have in the budget to complete the multiyear contract?

General RIGBY. Sir, we do not have any money in the 1990 budget for the last year of that contract. That money was taken from the budget because of affordability reasons; $284 million is required to complete that last year of the contract.

Mr. MURTHA. You convinced us to go to a five-year multiyear contract. The contractor had problems but you worked the problems out and now you are not going to buy the truck.

General RIGBY. Sir, we are going to buy it through the fourth year of the multiyear, but we decided that we could not afford the fifth year of that multiyear.

Mr. **Murtha**. I thought this was your highest priority truck.

General **Rigby**. It is a good truck, but it was a question of affordability against higher priority programs.

Mr. **Murtha**. What are higher priorities?

General **Rigby**. The Army constructed the budget on priorities of quality programs for personnel, readiness, maintaining the force structure as much as possible and stretching out modernization. Within modernization, those programs which contribute to the deep battle receive the highest priority.

Mr. **Murtha**. So you are letting the contractor off the hook. These trucks are going to cost a lot more money if you have to buy them later.

General **Rigby**. We don't think they will cost that much more money, as this is a fixed price contract, however, we will have to pay a penalty clause for terminating that last year of the contract.

Mr. **Murtha**. So the Army took the money out of the budget?

General **Rigby**. Yes, sir; out of the fiscal year 1990 budget for that last year.

Mr. **Murtha**. Specifically, the Army made the decision, it wasn't OSD?

General **Rigby**. The Army took out an initial portion of it, almost all of it, and the OSD review took the remaining amount.

Mr. **Murtha**. When you originally came in, you told us how important these trucks were. What are you going to use for trucks?

General **Rigby**. We are going to move to the family of medium tactical vehicles. That is state-of-the-art technology. We will be starting that buy in fiscal year 1991.

Mr. **Murtha**. You are going to start buying them in 1991?

General **Rigby**. That is correct.

Mr. **Murtha**. What are you doing between now and then?

General **Rigby**. We will have a break in production of about 12 months between the termination or the delivery of the last five ton trucks—March 1991—until we start producing the FMTV—March 1992.

Mr. **Murtha**. So you are telling me that these trucks were just nice to have; that they were something you really didn't need. It was nice to have these trucks, but you don't need them anymore?

General **Rigby**. Absolutely not, sir. The trucks are still a requirement, but in terms of the affordability and priority, we simply could not afford the last year.

Mr. **Murtha**. That is an easy word to say, affordability, but what about the troops and their needs. Are you going to have to pay more to maintain the old trucks? What is going to happen if you don't have these trucks?

General **Rigby**. We will have to pay in the short term higher Operational and Support, O&S, costs to keep our fleets operational.

In the modernization plan which we are planning to submit to you, we also have a Service Life Extension Program—SLEP—for our five ton and 2½ ton fleets that would extend those service lines.

Mr. **Murtha**. You have to drive two of those trucks in order to meet the same requirement as a five ton.

General **Rigby**. We are also SLEPing our five ton, sir, up to five thousand five tons of the older versions that will be put into the Service Life Extension Program.

Mr. **Murtha**. How much more life are you going to get out of these old trucks?

General **Rigby**. We should get another 12 years out of a 20 year old 2½ ton and another 13 years out of a 20 year old five ton.

Mr. **Murtha**. When you have an old truck even if you SLEP them, it costs more money to operate them?

General **Rigby**. It will cost somewhat more than a new truck, but certainly less than the older vehicle if we did not put that SLEP program in.

Mr. **Murtha**. So you are telling me you really didn't need these new trucks in the first place?

General **Rigby**. No, sir, not at all.

Mr. **Murtha**. What was the point in buying them? You misled the Committee.

General **Rigby**. The requirement still exists.

Mr. **Murtha**. If the requirement still exists, why isn't the money in there?

General **Rigby**. Affordability against other priorities. We put together a program——

Mr. **Murtha**. But you really didn't need these trucks. You told us you did, but you really didn't need them, that is what it amounts to.

General **Rigby**. No, sir, that is a good truck produced by BMY. It has far exceeded in the initial production tests our standards. We are looking forward to that truck going into the field.

Mr. **Murtha**. If they had met the original contract obligation for deliveries, how many trucks would you have in the field now? I thought it was about 6,000.

General **Rigby**. That full multiyear calls for 15,218 vehicles through 1990. We will not be buying a little over 4,000 vehicles, which was the quantity associated with that last year of the multiyear.

Mr. **Murtha**. How many of the current trucks can we SLEP to save money? When we SLEP these vehicles, does it save us a lot of money?

General **Rigby**. We estimate that over a 20 year period with the SLEP program I have described, we will avoid about $1.4 billion of O&S costs by SLEPing about 30,000 2½ tons and 5,000 5 tons.

BRADLEY FIGHTING VEHICLE/M113 ARMORED PERSONNEL CARRIER

Mr. **Murtha**. Do you have responsibility for the Bradley fighting vehicle?

General **Rigby**. No, sir. I do not.

Mr. **Murtha**. I learned recently that there was a major competition in Europe and the unit that won the competition didn't use the Bradley. It was a competition with armored vehicles and the winner used M113 armored personnel carriers rather than the Bradley.

So I asked General Pihl about this. I got a long letter back and it said, that it really doesn't make any difference which vehicle is used. It is the team that counts. Are you familiar with this story?

General CHEN. Yes, sir.

Mr. MURTHA. Are we wasting our money here buying this new equipment? I am getting the impression you ask for new equipment, but when there is a little problem you go back to the older equipment.

Can we do the same thing with the M113? Can we just upgrade it, SLEP it and not buy the Bradleys? Where are we with these programs?

General CHEN. I think in the case of the competition, the measurements used in the competition were more oriented on the skills of the crew as opposed to the vehicle itself.

Mr. MURTHA. But the point is you had an M113, which is an old vehicle, win the worldwide competition.

Where are we going here?

General RIGBY. Sir, in the long run, the ideal thing is modernization through new procurement. In the short and mid-term——

Mr. MURTHA. So you are actually saying to me that it is going to cost you more money in the long run if you don't buy these trucks? That is what you are saying?

General RIGBY. Yes, sir.

Mr. MURTHA. So you really need these trucks? They were a high priority and you have knocked them out because of the short-term savings; that is what you are saying to me?

General RIGBY. The affordability reasons in the short term, yes, sir.

Mr. MURTHA. Mr. Livingston?

Mr. LIVINGSTON. No questions, Mr. Chairman.

Mr. MURTHA. Mr. McDade?

CHAPARRAL MISSILE

Mr. McDADE. Thank you, Mr. Chairman. Let's discuss the Chaparral for a little bit.

After a lot of convolutions, it looks like this is a program that is back on track and you are apparently going to be able to buy hundreds more missiles in 1988 and 1989 than had been originally planned.

Bring the Committee up to date on the Chaparral program accomplishments during the past year and specifically compare the 1988/1989 budgeted Chaparral missiles and actual contract amounts.

General CHEN. In the case of Chaparral, with fiscal year 1988 and the funding for fiscal year 1988, that was used to procure from the second source; Hughes Aircraft Company, and for fiscal year 1989, that went to the prime contractor, Ford Aerospace.

In the case of the fiscal year 1988 buy, we were able, in conjunction with prior-year funds in 1987, to buy from the second source 122 new Chaparral missiles, modifications of the guidance section, totaling 574, and then 25 of those are for test.

In the case of fiscal year 1989, with the prime contractor, we are buying 368 new, 48 modifications and 25 for test.

The funding was $92.9 million for the second source, Hughes, and in the case of Ford, was $74.3 million. We achieved a significant savings with going to the second source.

Mr. McDADE. What is the effect that the competition has on the average price of the missile?

General CHEN. Compared to the prime contractor, the average price for the second source was about 40 percent less.

Mr. McDADE. What is the overall dollar savings that you anticipate as a result of the dual strategy?

General CHEN. Right now, I don't have that figure, because the strategy extends from——

Mr. McDADE. Do you have an estimate?

General CHEN. No, sir, I don't. What I am saying is that in fiscal year 1990 and beyond, we have competitive buys between the two contractors and so until we resolve who wins those, we can't determine the savings.

Mr. McDADE. But your current estimate is 40 percent on the missile?

General CHEN. I believe so.

Mr. McDADE. What is the status of the second source? When will the contractor deliver the first missiles?

General CHEN. I don't have that.

Mr. McDADE. Furnish it for the record.

[The information follows:]

The second source contract with Hughes was awarded 22 September 1988. Hughes is building two proof-of-manufacture guidance sections on their own initiative. This hardware should be available about September 1989. First article deliveries are currently scheduled January 1990, about two months ahead of contractual requirements.

Mr. McDADE. Do you know when you are going to compete for a head-to-head for a winner-take-all buy?

General CHEN. We will do this in increments. Fiscal year 1990 will be competitive between the two. With the funding that we currently have in the fiscal year 1990 budget, it will be a winner-take-all.

Mr. McDADE. How many missiles will the second source have delivered by that time, when you get to that point?

General CHEN. Let me provide that for the record.

[The information follows:]

Hughes, the second srouce, will deliver 295 RSS guidance sections prior to the anticipated award of the FY 1990 buy.

Mr. McDADE. We are getting some information that this program could be a target for termination in the Bush budget amendment. Do we know whether the threat or acquisition objective has changed to support termination?

General CHEN. The acquisition objective and the threat have not changed. The issue associated with possible deletion from the budget is based upon affordability and the overall priority that the Army has with reference to putting together its amended budget.

Mr. McDADE. What is the on-hand inventory after 1989 deliveries and how does that compare with the objective?

General CHEN. As of the end of the 1989 funded delivery period, we will only have 37 percent fill of the acquisition objective.

Mr. McDade. If you take this weapon away, what have you got that is going to fill the gap that Chaparral does and when might we expect to see it? What have you got to take its place?

General Chen. In order to take its place, we would have to make use of the other weapons that are in air defense, such as the Forward Area Air Defense weapons, the Stinger, the Pedestal-Mounted Stinger.

So the balance of the air defense systems would have to take up the loss if Chaparral were terminated.

TOW 2 MISSILE

Mr. McDade. Let's talk about TOW 2. Last year there was a lot of pushing and shoving, as you know, on this side of the Capitol with the DOD's proposed acquisition strategy for the TOW 2 missile.

Please bring the Committee up to date on the current status being sure to address the following issues and changes from last year's plan: one, the multiyear contract with the prime; and two, the second source development, especially the production rate ramp-up.

General Chen. First, with regard to the multiyear, over the past year, there were issues associated with second source and multiyear. There was congressional language to undertake a second source.

We, indeed, are implementing that, where we have a solicitation for the second source on TOW, and so based upon that, we plan to begin the second source. The plan is to start the second source of TOW in fiscal year 1989 with an educational buy of 300 and then in fiscal year 1991 to have a quantity from the second source of 3,000.

As a result of the timing associated with the prime contracts, we were not able to implement a multiyear contract for the ongoing TOW production, and so fiscal year 1989 is an annual buy, as will be fiscal year 1990 and 1991; 1990 will be an option to the 1989 contract.

Mr. McDade. Well, in other words, does the 1990 budget request meet the minimum sustaining production rate for TOW 2.

General Chen. The Army request by itself is 9,455, which by itself does not meet the minimum sustaining rate, but when we look at minimum sustaining rate, we take into consideration the other customers such as the Marine Corps.

The Marine Corps has a buy of 839. That adds up to 10,294. We may have additional foreign military sales, so that total meets the minimum sustaining rate.

Mr. McDade. Don't you need to be submitting a budget request of that nature, talking about a second source—aren't we on kind of thin ice with these numbers?

General Chen. The quantity itself becomes marginal in terms of fully supporting the second source. We did implement the second source based upon congressional guidance and we are executing that.

Mr. McDade. But if you get below that number, you are on thin ice, aren't you?

General Chen. Yes, sir.

Mr. McDADE. What number do you need to have a robust number on TOW?

General CHEN. I would like to provide that for the record.

[The information follows:]

To adequately support two sources and meet the minimum sustaining rates the Department of Defense (DOD) should procure 20,000 missiles per year. The present contractor, Hughes Aircraft, is facilitized for 1,000 missiles per month or 12,000 missiles per year. The second source is planned to be facilitized at 10,000 to 12,000 missiles per year. In developing the 20,000 missile procurement requirement we estimate that between 6,000 to 10,000 missiles per year are purchased by FMS customers. These additional customers of TOW missiles, along with projected FYDP DOD procurement, should allow the Army to maintain both sources at or above their minimum sustaining rates.

Mr. McDADE. How much will the second source development cost? How much will it be and how many missiles have to be purchased before a payback is received?

General CHEN. The cost for the second source for fiscal year 1988 is estimated at $15.8 million. For fiscal year 1991, it is $10.9 million. So we would need to incur those costs to start up the second source.

Mr. McDADE. How many missiles have to be purchased before you get a payback?

General CHEN. That would be—the second source is facilitized so that it could produce at 12,000 missiles per year. To get the payback depends on the ultimate competition between the second source and the prime, because once they are both capable of producing, then the payback can be gained faster once you have that competition.

Mr. McDADE. Do you have an opinion as to where the ballpark is in terms of the number that would have to be produced to get a payback?

General CHEN. No, sir; I don't.

Mr. McDADE. Do you have an estimate?

General CHEN. No, sir.

Mr. McDADE. When are you going to put the TOW 2B missiles into the production line?

General CHEN. Fiscal year 1990 will be the first year's buy for the TOW 2B.

Mr. McDADE. We have talked a lot in the hearing this morning and in previous years about concurrency. Do you have any concerns about concurrency, production, putting this TOW 2B in the line?

General CHEN. I believe that in the case of the TOW 2B, that our concurrency is minimal.

Mr. McDADE. Tell us why.

General CHEN. Because we are into the development phase now.

Mr. McDADE. No software problems?

General CHEN. Not in the case of TOW.

Mr. McDADE. What about tests?

General CHEN. We will have sufficient testing before production.

Mr. McDADE. How many tests will you run?

General CHEN. Let me provide that for the record.

[The information follows:]

TOW 2B is following an aggressive testing plan. This plan calls for six separate tests. These tests are: 1) Warhead Design Evaluation, 2) Engineering Flight Tests in two phases, 3) Warhead Qualification Test, 4) Sensor Qualification Test, 5) Contractor Qualification Test and 6) Developmental Test and Operational Test (DT/OT)—65 Flight Tests. The development effort for the TOW 2B missile began in FEB 87 and is now 50% complete. These tests include:

- (1) Warhead Design Evaluation—60 warheads (static/dynamic)
  - (a) Warhead penetration against all TOW 2B targets.
  - (b) These tests are scheduled to be completed in APR 89.
- (2) Engineering Flight Tests:
  - (a) Phase I—Sensor Down Select.
    - (1) 15 flight tests (three sensor contractors, five flights each).
    - (2) 10 targets per flight.
    - (3) Each missile has a telemetry unit with the sensor, no warhead.
    - (4) Phase I flights were completed in JAN 89. During Phase I the sensor was selected for entry into Phase II.
  - (b) Phase II—Engineering Flight Test.
    - (1) 20 flight tests—with the selected sensor.
      - (a) 10 flights with telemetry and sensor.
      - (b) 10 flights with warhead or spot charges.
    - (2) Multiple targets. The Phase II test is scheduled to be completed in SEP 89.
- (3) Warhead Qualification Test—70 warheads.
  - (a) Thermal and vibration environments.
  - (b) Shock test.
  - (c) These tests are scheduled to be completed in OCT 89.
- (4) Sensor Qualification Test—30 Sensors.
  - (a) Sensors will be used in the 65 flight tests during DT/OT.
  - (b) Thermal and vibration environments.
  - (c) Shock test.
  - (d) These tests are scheduled to be completed in DEC 89.
- (5) Contractor Qualification Test—8 Missiles.
  - (a) Thermal and vibration environments.
  - (b) Shock test.
  - (c) These tests are scheduled to be completed in MAY 90.
- (6) DT/OT—65 flight tests.
  - (a) Flight tests are with warhead or spot charge.
  - (b) EMI/EMR testing at missile level.
  - (c) These tests are scheduled to be completed in MAY 90.

PALLETIZED LOADING SYSTEM

Mr. McDade. Let's talk about this Palletized Loading System.

We know that we are into that as a method of providing a more capable and efficient means of transporting ammunition and other bulk cargo.

While the Committee supports the PLS program, we have expressed concerns about the PLS acquisition strategy—which is focused around the procurement of a new vehicle.

But the PLS concept does not just involve a new truck, but also must take into account the need to field adequate ammunition and cargo flatracks and containers, which can be used not only with the PLS, but the other elements of the logistics chain—airlift and sealift.

As I understand the PLS acquisition strategy, the prime contractor for the vehicle is also responsible for providing the cargo flatracks and containers to be used by the PLS.

Is that the acquisition strategy?

General Rigby. That is correct for this first buy of the PLS, which procures trucks, flatracks, and trailers.

As a product of that first buy, we will be buying a level 3 technical data package which would permit later breakout of component parts.

Mr. McDade. How many years does the first buy run?

General **Rigby**. It is a five-year multiyear.

Mr. **McDade**. Aren't you concerned that lumping all aspects of the PLS acquisition around the truck can only create a lot of problems downstream for air or sea transportation?

It looks to us like there is so much reliance on a multi-year contract and a five year buy that he may produce a container or flatrack will work in the truck, but produce a lot of problems downstream.

General **Rigby**. We don't see that at this time because the particular flatrack that we are addressing here is an ammunition flatrack. There are other uses being examined for a PLS system in the future.

Mr. **McDade**. You are all supposed to be working together on this, the Army doing the lead procurement, the Navy and the Air Force working with you.

We are concerned about, with the vehicle producer, he is going to produce you a truck that is going to work as well, but it might not fit in neatly with the other logistics systems.

It seems to us to be a large concern.

General **Rigby**. We don't see it at this point with the particular ammunition flatracks that we are looking at now.

Mr. **McDade**. Last September the Commander of the Army Logistics Center, Lieutenant General Tuttle, wrote the PLS developer, the Tank-Automotive Command.

General Tuttle cited specific requirements for the PLS flatracks, in order to optimize their use in air and ocean transport.

Have the specifications for the PLS been changed to include these requirements? If not, why? Are Army logisticians being ignored?

Mr. **Burcz**. The specifications have been what the contractors are responding to and are consistent with the requirements documents which includes all the transportability.

Mr. **McDade**. Do they include General Tuttle's requirements outlined in the letter?

Mr. **Burcz**. To my knowledge, they do.

Mr. **McDade**. He said for air transport, the flatracks have to have direct compatability with the handling systems of U.S. cargo aircraft without the use of an intermediate platform such as the 463L pallet, and for ocean transport, the racks must be stackable in the cells of container ships.

In other words, he was pointing out that there are a lot of differences in here.

We want to get assurances back before we begin to support this that you have looked at it from alpha to omega, taking into consideration his concerns that we are not just looking at some truck manufacturer who will give you components that will fit the rack, but not the rest of the system.

We need to know if the specifications will be changed.

[The information follows:]

The PLS, per specifications, meets all of the transportability requirements as detailed in the approved ROC. LTG Tuttle's letter expressed the desirability of two transportability characteristics that go beyond the requirements of the ROC. Those characteristics are: (1) direct compatibility of the PLS flatrack with the handling systems of cargo aircraft (C141, C130, C17, C5A) without use of an intermediate 463L pallet, and (2) bulk loaded flatrack stackability in a container vessel. We concur in the desirability of these additional characteristics but further analysis has revealed the following: (1) A study performed by the Military Traffic Management Command Transportation Engineering Agency (MTMCTEA) concluded that the flatrack dimensional constraints in the interoperability agreement with the UK and Germany prevent direct compatibility with Air Force loaders and cargo aircraft. (2) The requirements and concept of operations for a stackable flatrack have not yet been defined or developed by the Army. The PLS addresses the need for ammunition distribution from rear Corps forward to the user as stated in the ROC. The stackable flatrack addresses a strategic mobility capability whose need and requirements have not yet been established.

Our position has been discussed with LTG Tuttle and he has agreed to impose those characteristics on the PLS after completion of additional study of their impacts.

Mr. McDade. Why does the Army plan to give the PLS contractor the authority to select and provide the flatracks and containers? Why not consider these items as government-furnished equipment, or procure them separately from the PLS? Wouldn't this give the Army a greater ability to ensure that these items will meet Army logistics requirements?

General Rigby. Sir, for the specialized mission of the PLS and the ammunition hauling and the self-load/unload capability that we are looking at now, and the use of a performance specification rather than a detailed specification, we consider it essential that system integration remain with one contractor during this phase.

Mr. McDade. But that doesn't answer the question of making sure that it meets all the requirements that you might have. Our problem, the problem I am trying to point out to you, is our concern with reliance on one contractor who is going to build you a vehicle and attach a system to it which may fit his vehicle, but not other vehicles. That was General Tuttle's concern. We want to be sure that we are making sure that we don't buy something that works only partway. We want to make sure that we have enough flexibility in your procurement strategy that this thing is going to work properly.

General Rigby. I would like to tell you about a program that pm ammolog is looking at now. It is a program called the ammunition container/hook interface kit. We are addressing two goals in that program. One is to look at a kit that will allow the PLS to pick up standard containers and use on the PLS system.

However, the basic PLS truck would have to be modified to accept that container under this first goal. The second goal is to look at alternate containers that will go on the PLS truck without any modification. We are going to take a look at a testing of that system and an interface with the PLS in the second quarter.

Mr. McDade. We have questions that we want you to answer for the Committee so that we get full assurances that we have confidence that we will do this right.

[Clerk's note.—Questions submitted by Mr. McDade and the answers thereto follow:]

Question. The Army's new Palletized Loading System, or PLS, is being developed in order to provide a more capable and efficient means of transporting ammunition and other bulk cargo.

While the Committee supports the PLS program, we have expressed concerns about the PLS acquisition strategy—which is focused around the procurement of a new vehicle. But the PLS concept does not just involve a new truck, but also must take into account the need to field adequate ammunition and cargo flatracks and containers, which can be used not only with the PLS but the other elements of the logistics chain—airlift and sealift.

As I understand that PLS acquisition strategy, the prime contractor for the vehicle is also responsible for providing the cargo flatracks and containers to be used by the PLS. Is this correct?

Answer. The prime contractor is responsible for building and integrating the cargo flatracks. There is no requirement for containers to be designed or built as part of the current PLS program, however the PLS program includes trailers.

Question. Under this concept, it is conceivable that the contractor could supply flatracks which, while compatible with the PLS, may not be optimized for air or sea transport. The Army could conceivably end up buying racks which "won't work" throughout the entire logistics chain. (Our information is that initially over 6,000 of these racks will be required with PLS, so this is not an inconsequential item). What action is the Army taking to ensure that this won't take place? Is the Army Logistics community getting an opportunity to define requirements of the flatracks to be used with PLS?

Answer. The PLS specification requires that the flatrack be transportable by container vessel (ocean) and by air transport. In addition, certain design constraints have been imposed to assure that the flatracks are interoperable with the flatracks of great Britain and West Germany. The PLS does respond to all validated requirements, however the flatrack currently may not be optimized for all classes of supply over all modes of shipping. The Requirements and Operational Capability (ROC) was developed by the logistics community, primarily the Transportation School. The PLS is designed for transportation of ammunition from rear Corps forward to the user.

Question. Last September, the Commander of the Army Logistics Center, Lt. General Tuttle, wrote the PLS developer, the Tank-Automotive Command. General Tuttle cited specific requirements for the PLS flatracks, in order to optimize their use in air and ocean transport. (For air transport, he said the flatracks must have direct compability with the handling systems of U.S. cargo aircraft without the use of an intermediate platform, such as the 463L pallet. For ocean transport, the racks must be stackable in the cells of container ships). Have the specifications for the PLS been changed to include these requirements? If not, why—are Army logisticians being ignored?

Answer. The PLS, per specifications, meets all of the transportability requirements as detailed in the approved ROC. LTG Tuttle's letter expressed the desirability of two transportability characteristics that go beyond the requirements of the ROC. Those characteristics are: (1) direct compatibility of the PLS flatrack with the handling systems of cargo aircraft (C141, C130, C17, C5A) without use of an intermediate 463L pallet, and (2) bulk loaded flatrack stackability in a container vessel. We concur in the desirability of these additional characteristics but further analysis has revealed the following:

a. A study performed by the Military Traffic Management Command Transportation Engineering Agency (MTMCTEA) concluded that the flatrack dimensional constraints in the interoperability agreement with the UK and Germany prevent direct compatibility with Air Force loaders and cargo aircraft.

b. The requirements and concept of operations for a stackable flatrack have not yet been defined or developed by the Army. The PLS addresses the need for ammunition distribution from rear Corps forward to the user as stated in the ROC. The stackable flatrack addresses a strategic mobility capability whose need and requirements have not yet been established.

Our position has been discussed with LTG Tuttle and he has agreed to impose those characteristics on the PLS after completion of additional study of their impacts.

Question. Why does the Army plan to give the PLS contractor the authority to select and provide the flatracks and containers? Why not consider these items as Government-Furnished Equipment, or procure them separately from the PLS? Wouldn't this give the Army a greater ability to ensure that these items will meet Army logistics requirements?

Answer. The PLS contractors have the authority only to select a particular flatrack design which meets our air and ocean transportability requirements and the design constraints of the Interoperability agreement. Containers are not part of the PLS program. Given the fact that we are procuring the system based on a performance specification, it is critical that a single integrator be given responsibility to assure that the entire system operates as intended. The production contract will include the acquisition of the Technical Data Package (TDP). This drawing package will provide for secondary item breakout and alternate source identification to the maximum extent practicable. This will give the Army adequate opportunity to meet whatever additional requirements that may be imposed in the PLS.

Question. The Army logistics community is currently testing a new ammunition container (AMCON), designed to meet the requirements of air and ocean transport as well as compatibility with PLS. The Army advised the Committee last fall that AMCON testing would be synchronized with PLS prototype testing. Provide a summary of the current AMCON testing schedule, to include tests with PLS.

Answer. The PM for PLS has offered PLS prototypes to be tested with the AMCON immediately after completion of the downselect testing for a production contractor and to ensure compatibility of the AMCON container with the PLS system.

[CLERK'S NOTE.—End of questions submitted by Mr. McDade.]

TEN TON TRUCKS

Mr. MURTHA. Where are we on the ten ton truck?

General RIGBY. Sir, the HEMTT is being procured through 1988 and 1989. With those two buys in 1988 and 1989, we will have procured 11,498 HEMTT's. That is 88 percent of the procurement objective for that system.

Mr. MURTHA. Do you have any problems with this system?

General **Rigby**. No, sir. It is a good vehicle. It has user acceptance. It is a good system.

Mr. **Murtha**. You are not going to tell us next month it is not a good system?

General **Rigby**. No, sir.

Mr. **Murtha**. Because of affordability?

General **Rigby**. Sir, I will repeat upfront again, we did not buy the remaining 1,783 systems that were directed in the 1988–89 Authorization Act in 1990 and 1991 because of affordability. Money was authorized for 1988 and 1989. We did execute the fiscal year 1988 buy, and are in the process of executing the fiscal year 1989 buy. No funds have been authorized by Congress for fiscal year 1990 and fiscal year 1991.

Mr. **Murtha**. Do you need the trucks or don't you need the trucks?

General **Rigby**. Sir, we need the vehicle.

Mr. **Murtha**. Thank you very much, gentlemen. We have other questions for the record. The Committee is adjourned until 1:30 p.m., this afternoon.

[Clerk's note.—Questions submitted by Mr. AuCoin and the answers thereto follow:]

M915 LINE HAUL TRACTOR

Question. What is the status of the Army's M915A2/M916A1 truck procurement program? Are there any problems that will hold up delivery of these units? How is the contractor performing on this contract?

Answer. The Army has awarded, to date, quantities of 673 each M915A2 Line Haul Tractors and 412 each M916A1 Light Equipment Transporters to Freightliner Corporation of Portland, Oregon. The basic contract award in September 1988 was for 385 each M915A2s and 393 each M916A1s. The balance of the quantities procured to date have been through the exercise of options. Initial Production Testing is scheduled to commence in October 1989 and conclude in March 1990. First Unit Equipped is scheduled for December 1990. There are no current or anticipated problems which will impact scheduled deliveries of trucks. The contractor is performing to schedule.

Question. What are the Army's plans for procurement of the M915A2/M916A1 in fiscal year 1990 through fiscal year 1992? Please include in your answer the budget request for fiscal year 1990 through fiscal year 1992?

Answer. The only budgeted quantities on this program in the fiscal year 1990–1992 time frame are 118 each M915A2s in fiscal year 1990. This will buy out the budgeted quantities for the Logistics Unit Productivity Study (LUPS) initiative. This quantity will be procured by exercise of available options under the ongoing Freightliner contract.

DESERT MOBILITY VEHICLE SYSTEM (DMVS)

Question. I understand that the Army's Tank Automotive Command (TACOM) is currently conducting a market investigation into the availability of a nondevelopmental item (NDI) trailer for the

High Mobility Multipurpose Wheeled Vehicle (HMMWV) and the Desert Mobility System. What is the status of that program? Please include a timetable with significant deadlines. What are your procurement plans for this trailer in FY 1990 and the out year budget requests?

Answer. The Army does not have an approved requirement for the HMMWV/High Mobility Trailer. The Desert Mobility Vehicle System (DMVS) (consisting of a M1026 HMMWV, trailer and motorcycle) program has completed its trailer market investigation and TACOM is currently preparing documentation for a Milestone Decision Review I/III. The intent is to acquire the DMVS using a NDI strategy. The DMVS trailer is not to be construed as a HMMWV or High Mobility Trailer. Any similarity between the two programs is coincidental. DMVS milestone schedule follows:

Independent Evaluation Plans Received	Sep 88
Market Investigation	Nov 88–Mar 89
Required Operational Capability Approval	Mar–Apr 89
RFPS Released For Desert Operational Trailer (DOT), Desert Operational Motorcycle (DOM).	Jul–Aug 89
Milestone III Decision	Aug 89
Modification of HMMWV's	Oct 89
Source Selection Evaluation	Nov 89–Feb 90
Mod HMMWV Delivery Initiation	Nov-Dec 89
Award DOT, DOM Prod Contracts	Feb 90
DOT, DOM Deliveries Initiated	Aug 90
Prod Qualification Test (DOT, DOM)	Aug 90–Feb 91
Type Classification in Process Review	Mar 91
AMC 700-34 Release (Type Classification Rev)	Jul 91
First Unit Equipped	Aug 91

The DMVS trailer (48 ea) will be procured in FY 1990. There are sufficient funds programmed to make minor modifications to the HMMWV as well as procure the 30 motorcycles. There are no other out year DMVS trailer plans currently scheduled.

Question. I understand that Federal Acquisition Regulations state that acquisition of NDI items is the preferable method for purchase of supplies and equipment. With regard to the HMMWV trailer, could you tell me why—after TACOM conducted an initial market investigation in October, 1986—it decided to develop its own trailer design, when at least one or more nondevelopmental trailers were already available?

Answer. At the time TACOM began its design and analysis for the DMVS, none of the respondents were able to provide a trailer which fully met Army's Special Operating Force projected needs.

[CLERK'S NOTE.—End of questions submitted by Mr. AuCoin. Questions submitted for the record and the answers thereto follow:]

PATRIOT MISSILE

Question. The fiscal year 1990 budget includes $924.5 million for the Patriot missile program. Included in the total is a $248.3 million nonrecurring expense for something labeled the "Italian Case". There is a similar request of $248.2 million in 1991. This $500 million requirement stems from a 1988 Memorandum of Understanding between the United States and the Government of Italy, is that correct?

Included in the total Patriot funding is $28.6 million for the third NATO Maintenance and Supply Agency Patriot missile facility.

How much has been procured to date for the other Patriot NAMSA facilities?

Answer. The U.S. has invested $26.3 million in facilities and test equipment for the third PATRIOT Missile Facility (PMF-3) which will be operated by NAMSA. The U.S. has not invested any funding in the other PATRIOT Missile Facility operated by NAMSA, PMF-4.

Question. Where are they located?

Answer. PMF-3 will be located in Schrobenhausen. West Germany and becomes operational in June 1990. PMF-4 is projected to be located in The Netherlands and becomes operational in 1992.

Question. What has been the Dutch and German contribution to the facilities?

Answer. West Germany has invested $16.6 million and The Netherlands has invested $1.7 million. These contributions are based on the number of each country's missiles to be serviced by the NAMSA PMFs.

Question. Why do we need another facility? Why couldn't we get along with only two facilities in Europe? What operational requirement is for the third facility?

Answer. A Weapon System Partnership Committee within NAMSA represented by the three countries established the requirement for three PMFs. This requirement is based on several factors. Missile storage space at PMF-2 and PMF-3 is insufficient. Having a third facility located in The Netherlands reduces transportation costs for units deployed in northern Germany. Dispersing the workload across three facilities provides for a surge capability in the event of war and reduces the risk of discontinuation of operations during wartime, as well as peacetime. Peacetime risks include accidents, labor disputes, and sabotage.

STINGER-RMP

Question. The Stinger Reprogrammable Microprocessor (RMP) program is in trouble. The basic problem is that the software in the RMP module has not been developed to the extent that it works, especially against rotary wing targets. As a result, the government is not accepting RMP missiles, and more than 6,000 of them are stored at the contractor's facility in Southern California. How did we go from one of the most successful weapon system acquisitions to this debacle in a little more than a year?

Answer. The program was and is providing a new generation of STINGER missiles that has already demonstrated much more capability than any of its predecessors. The Research and Development effort associated with STINGER RMP should in the near term optimize the system's capability against slow moving targets; but its capability against fixed wing threats, which we expect STINGER to confront most frequently, is outstanding. Our delay in acceptance of missiles now being produced is a business decision to emphasize to the prime contractor the degree of concern that the Army feels about complete fulfillment of its contracts.

Question. The situation is even worse than it first appears. The missiles without the RMP module are supposed to work at least as well as the previous configuration, called Stinger POST. However, they do not. Please explain why and what you intend to do to remedy the situation.

Answer. The STINGER RMP missiles when combined with the advanced software contained in the external module, as intended for the U.S., are more capable than POST missiles. The RMP missiles on-board flight software, activated in the absence of a module, is slightly less than POST but only at certain areas of the outer boundary. This is not possible to observe in test but only through simulation. An engineering change proposal being processed at MICOM will make POST and RMP default performance comparable.

Question. Why didn't the Army more thoroughly test the STINGER RMP concept before buying thousands of missiles?

Answer. STINGER RMP is the third generation in the STINGER family of missiles. It shares many of the components of its predecessors including the BASIC STINGER control section, launch and flight motors, the STINGER POST seeker, and a large portion of its electronics. These components were proven through extensive testing and analysis of the STINGER and STINGER POST development programs. During these two programs, all flight software was resident in the electronics section which is a subcomponent of the missile round. The STINGER RMP design draws its software from an external software module. Since so much of the system was common to previous programs, the primary factors to be tested in the STINGER RMP program were its ability to load and store the external software program and the external software itself. During the early stages of RMP development, the missile successfully demonstrated its ability to load a program from the module. With the successful demonstration of the missile hardware, the decision was made to proceed with production in order to minimize the quantity of the less capable STINGER POST missiles. The software is still in a development process but can easily be incorporated into the missile system by "plugging it in" when development is complete. Testing of the software has included over 50 missiles flight tested to date to confirm the STINGER RMP capability.

Question. What is the status of the 1989 contract pending resolution of this problem?

Answer. General Dynamics and Raytheon await fiscal year 1989 contract awards. OSD has withheld money pending current test results. Given successful testing, STINGER anticipates award during the third quarter of fiscal year 1989.

Question. Why isn't the Army withholding progress payments to the contractor, as a means of expressing its extreme dissatisfaction with program performance?

Answer. The Army has not accepted delivery of completed missiles and continues to withhold 20 percent of GD's progress payments. Consequently, the burden of 20 percent of the value of manufactured missiles remains on the contractor. GD is sustaining daily added cost because of our dissatisfaction.

Question. What is the status of the second source development? How is General Dynamics' problem with the RMP module affecting the second source?

Answer. The second source production contract with Raytheon is proceeding on schedule. The General Dynamics' problem with the RMP module doesn't affect Raytheon because they produce missiles only. The missiles will work as intended with whatever module is developed.

Question. Explain the rationale behind the acquisition strategy of multiyear procurements for both sources beginning with head-to-head competition in 1991.

Answer. The multiyear procurement gives contractors a long view and provides the Government with substantial savings. The RMP FY 1991–1993 MYP is not a buyout contract. To insure the Government of a competitive second source for a final multiyear or buyout contract, both contractors must be maintained in a warm base.

Question. What are the estimated savings, in both dollars and percent, of the multiyear strategy?

Answer. STINGER–RMP multiyear savings is $22.5 million or 3.9 percent over annual buys.

Question. How many missiles do you estimate the second source will have delivered by the time of the 1991 competition?

Answer. According to the contract schedule, the second source will have delivered 305 missiles by the competition date of the first quarter, fiscal year 1991.

CHAPARRAL MISSILE

Question. After several years of perturbations, the Chaparral program finally seems to be on track. As a result of the competitive acquisition strategy pushed by the Congress, the Army will be able to buy hundreds more missiles in 1988 and 1989 than had been originally planned.

Bring the Committee up to date on CHAPARRAL program accomplishments during the past year. Specifically, compare 1988/1989 budgeted CHAPARRAL missiles and actual contract amounts.

Answer. The major accomplishments in the CHAPARRAL program during the last year included competitive award of a second source Rosette Scan Seeker (RSS) guidance section production contract (fiscal year 1988 buy) to Hughes Aircraft Company and fiscal year 1989 buy sole source award to Ford Aerospace Company (FAC). As a result, RSS guidance sections will be procured to the full authorized limit.

Based on the fiscal years 1988/1989 President's Budget utilizing the CHAPARRAL Baseline Cost Estimate, funding allocated to CHAPARRAL would procure the following RSS quantities:

	FY 1988	FY 1989	Total
New missiles	38	139	177
Mod missiles	66	15	81
Total missiles	104	154	258

However, actual results achieved from competition (utilizing competitive price as a negotiation tool in the FAC procurement):

	FY 1988	FY 1989	Total
New missiles	122	368	490
Mod missiles	574	48	622
Total missiles	696	416	1,112

The Army was able to buy 313 more new missiles and 541 more mod missiles.

Question. What effect has competition had on the average price of a CHAPARRAL missile?

Answer. Competition has resulted in a significant reduction in the price of RSS guidance sections compared to the baseline cost estimate (BCE). Based on a quantity of 721 RSS guidance sections, the BCE average unit price was $139,083. The original sole source proposed average unit price, proposed by FAC, was $138,316 each. The negotiated Hughes Aircraft Company competitive average unit price was $52,017. Due to intensive negotiations and the establishment of a competitive market price by Hughes, the Government negotiated a FAC contract with an average unit price of $81,771 each for 441 RSS guidance sections. From the first FAC proposal to the final negotiated FAC contract, the Government realized a 49 percent reduction in the average unit price. The FY 1990/1991 budget submission reflects the contract savings realized from this successful competition strategy.

MULTIPLE LAUNCH ROCKET SYSTEM (MLRS)

Question. The second multi-year procurement contract for the Multiple Launch Rocket System (MLRS) was scheduled to be signed last January. Has it been signed? If not, why not and what is the current date?

Answer. The second multi-year contract has not yet been signed. The current negotiation schedule anticipates an award in May 1989. In addition to the requirement to complete the contract negotiations, the Army is preparing the necessary certification to Congress required by the Fiscal Year 1989 National Defense Authorization Act.

Question. The contract covered procurement of 24,000 rockets and 44 launchers per year until fiscal year 1993. These quantities are funded in the Reagan five year budget. Are changes to MLRS five year profile being considered as part of the Bush budget reductions?

Answer. No reductions to the MLRS program are anticipated over the next five years. In fact, consistent with the recommendations of the Defense Science Board's report on Countering Soviet Fire, the Army is evaluating the possibility of increasing launcher production over the next five years.

Question. Are changes to the total MLRS procurement program for rockets and launchers being considered as part of the Fire Support Master Plan? If so, please explain in detail.

Answer. The Fire Support Master Plan calls for increasing the total procurement of MLRS launchers. As I pointed out, the Defense Science Board has recommended increasing the fielding of MLRS units to counter Soviet Fire. Additionally, the Master Plan calls for replacing extant 8" artillery units with MLRS units. Finally, we plan to replace the fielded Lance units (both nuclear and non-nuclear) with MLRS units that will be capable of firing both Army TACMS and Follow On To Lance. Each of these actions increases the requirement for MLRS launchers. It is for this reason that the Army is considering increasing the overall launcher buy.

The Army is considering increasing the MLRS rocket buy; however, the procurement of additional launchers does not necessarily translate into a requirement for additional MLRS rockets since the launcher is capable of firing the whole family of munitions to include MLRS SADARM, Army TACMS and Ground Launched Tacit Rainbow.

Question. What variation in quantity clause is included in the new contract? What would be required contractually if additional—or fewer—rockets or launchers were desired?

Answer. Provisions for variations in quantities (increases or decreases) will be included in the new contract. Due to uncertainty of a quantity change caused by a Gramm-Rudman-Hollings budget reduction, or a Bush budget change, the quantity adjustment will be made based on establishing not-to-exceed prices which will be further negotiated once the quantity is known.

Question. For the record, describe the characteristics of the multiyear contract and compare the contract costs with those estimated in last year's MYP justifications and included in the budget.

Answer. The multi-year contract being negotiated is very similar to the current multi-year contract with the exception of the production quantities involved. The contract will be firm fixed price with limited escalation adjustment provisions. While negotiations are not yet complete it appears that the prices will be within the amounts estimated in the multi-year justification package, and the budgeted amounts.

Question. The budget includes $28.567 million for MLRS modifications. Last year you projected a fiscal year 1990 funding level of $47.068 million. What accounts for the change?

Answer. The reduction in MLRS modifications was a part of an overall reduction for affordability. The requirement for the modifications continues to exist, and will be funded in later years.

Question. The $32.860 million appropriated for the MLRS mods last year is now proposed to be spent in a significantly different way from that justified last year. Explain each change in the fiscal year 1989 and 1990 programs and each change in the total cost for the modification.

Answer. The restructuring of the MLRS mods program was required due to the reduction in the fiscal year 1990 funding. This required a change in the application rate of the product improvements to the launchers. The product improvements involved are principally "deep battle modifications," that is, modifications to those launchers that have already been fielded, to enable them to fire the entire suite of munitions, such as MLRS SADARM, MLRS TGW, Army TACMS and Ground Launch Tacit Rainbow. The changes in the fiscal years 1989 and 1990 funding merely reflect a reduction in the quantity of kits that can be procured within the available funding and associated procurement/production lead times for the various components.

ARMY TACTICAL MISSILE SYSTEM (ATACMS)

Question. In the fiscal year 1988 Authorization Act, the Army Tactical Missile System (ATACMS) was established as an enterprise or milestone authorization program. Is the ATACMS currently meeting all schedule milestones, costs, and technical requirements established in the baseline for the program? If not, please explain.

Answer. The Army TACMS program has deviated from the schedule established in the original baseline for the program. The Army submitted a revised baseline for the Army TACMS in December 1988 due to a four month slip in the completion of Engineering Design Test—Contractor. This slip, combined with problems that LTV encountered with one of its subcontractors, resulted in a three month delay in the award of the Low Rate Initial Production contract, and similar delays in the start and completion dates for development and operational testing. Even with these delays, however, the First Unit Equipped date in the original baseline has slipped only one month.

The Army TACMS program is expected to be completed below the negotiated ceiling price of the Full Scale Development contract. Although some program "add-ons" and the subcontractor problems alluded to earlier will carry this Full Scale Development effort over the target price of the contract, we expect this development to be completed within the baseline value. The procurement of the first 1000 missiles is protected by not-to-exceed contract options. Therefore, unless the Army is forced to renegotiate these options due to no fault of the contractor, for example, due to a budget cut, the procurement baseline will not be breached.

The Army TACMS program is currently meeting all technical objectives.

Question. What is the status of the deviation report to Congress which will explain the breach?

Answer. The Army submitted its deviation report to the Office of the Secretary of Defense on December 2, 1988. OSD plans to forward its report to Congress in April 1989.

Question. Ten engineering design test flights have been conducted to date. What were the results of those tests?

Answer. Of the first ten missiles flown, eight were successful. The remaining two missiles flew very well but the warhead failed to dispense the submunitions. On missile flight five, an umbilical cord, which prevents the warhead from arming until the missile is launched, failed to separate. On missile flight six, the safe and arm mechanism failed. Both failures have been corrected and have not recurred. By the way, the first flight of Development Testing was conducted on March 31st, and was apparently a complete success. This was the eleventh Army TACMS missile flight.

Question. What is the schedule for development tests and operational test and how many flights will be conducted in each?

Answer. Development Testing (flight) began on March 31st and will run through mid-August. Initial Operational Test and Evaluation (flight) will begin in September and is scheduled to be completed in mid-December. The Army plans to conduct a minimum of 14 missile flights in Development Testing and 15 missile flights in Initial Operational Test and Evaluation.

Question. On how many of the DT and OT flights will all the components of the missile be qualified, including the control actuation system, and when will those flights take place?

Answer. The component qualification program ran concurrently with the Engineering Design Test—Contractor. With one exception, all component qualification testing was completed by January 1989. The one component that has not completed qualification testing is the Control Actuator System. The reason that the qualification testing of this component has been delayed is that it was necessary for LTV to change the subcontractors. Component qualification testing for the Control Actuator System will be completed in August 1989. With the exception of the Control Actuator System, all the components on the missiles flown in DT will have completed component qualification testing. All components in the missiles flown in operational testing will have completed qualification testing.

Question. The ATACMS contract has not-to-exceed priced production options for fiscal years 1989–1992. These options are required to be exercised in accordance with specific milestones or dates. Provide for the record these milestones and/or dates.

Answer. The NTE options for full scale production are:

Year, quality and remarks

Fiscal year 1989—66—Exercised within three months of the completion of the following events but no earlier than 31 October 1988: EDT–C with at least four successes; Component Testing; Software Validation; and Safety Certification.

Fiscal year 1990—276—Exercised within 95 days of last IOTE flight but no sooner than 31 October 1989.

Fiscal year 1991—452—Exercised within 12 months of 1st FSP option but no sooner than 31 October 1990.

Fiscal year 1992—206—Exercised within 12 months of 2nd FSP option but no sooner than 31 October 1991.

It is important to note that the exercise of each of these options is contingent upon the exercise of the previous year's option, and the award of the long time items to support that fiscal year's buy. If we fail to exercise any of these options, we lose each of the succeeding NTE options.

Question. When were options exercised for low rate production long lead time items, low rate production, and full production long lead items?

Answer. The long lead time items for LRIP were contracted for in May 1988. The 1st year LRIP contract was awarded in February 1989. We plan to award the $4.3 million long lead time item option for full scale production in August 1989.

Question. How do you justify awarding a low rate production contract before all components of the missile are qualified? Are requirements of your contract and/or the law being waived?

Answer. The Army waived the completion of component qualification testing to enter Low Rate Initial Production (LRIP). All components except the Control Actuator System had completed qualification testing before the LRIP contract was awarded. Furthermore, the Army delayed the LRIP decision until after the replacement Control Actuator System had been demonstrated in LTV's Hardware in the Loop Simulator using actual flight data from the first series of Engineering Design Test—Contractor flights. The alternative would have been to wait until the Control Actuator System had completed component qualification testing in August to make the LRIP decision. This would have delayed the fielding of this critical, deep battle conventional capability by almost a full year. It should be pointed out that all of the missiles built under this contract are protected by a three year warranty from the manufacturer. Considering these factors, the Army viewed this as a low risk decision. No provisions of law were waived.

Question. How do you justify awarding a full rate production contract (even long lead) before DT and OT testing are done? Are requirements of your contract and/or the law being waived?

Answer. The full rate production contract will not be awarded until after both Development and Operational Testing have been completed and the results reported to Congress as required by law.

We will not award the Long Lead for the full rate production option until after we have completed development testing. Based upon the results of that testing, we will proceed with either the baseline program with one year of LRIP followed by Full Scale Production, or revert to a two LRIP program. The Army has an option exercise date in August for award of the Long Lead Time Items to prevent a production line break. If it does not award the LLTI in August, the Army will lose the NTE production options.

The LLTI amounts to $4.3 million of a total cost of $137.6 million for the 276 missiles to be procured in fiscal year 1990. This is weighed against the overall program increase of about $58 million if the program were forced to enter a second year of LRIP. Given this cost increase, and the urgent need to field Army TACMS, this seems to us to be a prudent course of action.

The LLTI are castings, forgings, and sheet steel that are not likely to change as a result of the test program. Therefore, unless the program is terminated, these items will be used even if the program is forced to revert to a two year LRIP at some later date.

The award of this LLTI does not commit the Army to proceed beyond Low Rate Initial Production; however, the failure to award it will preclude the Army from entering Full Scale Production in March 1990.

Award of Long Lead Time Items for full scale production was approved by the Deputy Secretary of Defense as part of the Milestone II decision. The award of Long Lead Time Items does not commit the Army to proceed beyond Low Rate Initial Production nor is it a decision to proceed beyond that point. Further, award of LLTI preserves the Army's ability to proceed into full scale production. Under these circumstances, we do not believe that award of Long Lead time Items in the amount of $4.3 million is in violation of 10 U.S.C. 2366.

Question. What are the current dates for the OT Readiness Review and Milestone III production decision?

Answer. Several OT Readiness Reviews will be conducted between now and the time that the Initial Operational Test and Evaluation begins. The final OT Readiness Review will be conducted in mid-August following the completion of Development Testing.

The Milestone III decision is scheduled for March 1990.

Question. What are the dates for award of the fiscal year 1990 full rate production contract and the long lead funding included in the fiscal year 1990 budget?

Answer. The Army is contractually obligated to sign the production contract 95 days after successfully completing development and operational testing. This date is set as the day of the last flight of the Initial Operational Test and Evaluation. At this time, this would place the contract award at not later than March 20, 1990. If the Army does not exercise the option within this amount of time, the NTE contract options will expire.

The Army plans to award the long lead time contract for the fiscal year 1991 buy, using fiscal year 1990 funding, in June 1990.

Question. The Army had a program review of ATACMS in January. What decisions resulted from this review?

Answer. The Army Systems Acquisition Review Council approved the program's entry into LRIP. It recommended proceeding with the baseline program consistent with the recommendations of the Review Panel for the Program Deviation Report. Essentially, this provided for an "off-ramp" to a two year LRIP program at the end of development testing and operational testing should it be warranted.

Question. Does the ATACMS contract have an option for a second year of low rate production? If so, please provide the details, including the costs.

Answer. When the program was initially contracted, the government had an option of exercising either a program with one year of LRIP or a program with two years of LRIP. As the contract read, once the choice had been made, it was irreversible; however, in February, when the Army signed the one year LRIP option, it also negotiated an option that would enable the Army to revert to the two year LRIP program. The cost of exercising this option was priced at NTE $18 million. Combined with the increased costs of approximately $40 million associated with a two year LRIP, this would place the increased program cost to revert to a two year LRIP program at approximately $58 million.

The second LRIP contract would provide for the procurement of 60 missiles the second year followed by full scale production contracts of 228 missiles in fiscal year 1991, 442 missiles in fiscal year 1992 and 204 missiles in fiscal year 1993.

LASER HELLFIRE

Question. The Congress has been a strong supporter of the Laser Hellfire program for some time. In both fiscal years 1988 and 1989, Congress added funds above the budget to procure at least 6,000 missiles each year. In addition, conferees on the 1988 Act urged the Department to budget for 6,000 missiles annually. Not only has the

Department ignored that guidance (the 1990 request is for only 3102 missiles) but a reprogramming was proposed using 1988 Hellfire funds as a source.

Why do you continue to ignore the wishes of the Congress on this issue? What was the Army request to OSD for this program?

Answer. In the fiscal years 1988/1989 Budget submission, $168.358 million was requested by the Army for procurement of 5,000 Hellfire missiles in fiscal year 1988. This was the amount authorized. The Appropriations Committees directed the Army to budget for 6,000 Hellfire missiles and, accordingly, included an additional $35.0 million. Since the additional amount had been appropriated without being authorized, authorization was sought by the Secretary of Defense on 19 February, 1988. The initial response from the Armed Services committees, dated 8 March, 1988, indicated that the Department had a number of "must fund" bills and that it was "difficult for us to evaluate the merit of the programs appropriated in excess of the authorized level without knowing which programs the Department intends to reduce in order to pay these currently unbudgeted bills." Based on this response, it appeared that authorization of the additional 1,000 Hellfire missiles was not likely and the additional Appropriation was surrendered to help cover the bills cited in the letter. A subsequent letter from the Armed Services Committees, dated 28 April, 1988 approved the unauthorized appropriation for Hellfire but by that time the funds had been earmarked for giveup to other high priority programs.

Question. What is the current inventory objective for the Hellfire missile?

Answer. The current procurement (inventory) objective for the Hellfire missile is 48,696.

Question. What was it a year ago?

Answer. Hellfire missile procurement objective last year was 48,696. The Hellfire missile procurement objective remains constant.

Question. What is the minimum economic production rate for both producers in this program and how does that rate compare with planned buys under the budget request?

Answer. The minimum economic rates for Rockwell and Martin Marietta are 230/month and 300/month respectively; this would equate to an annual buy of 6360 per year if you assumed a 50%–50% split award of the annual buy to each contractor. However, the current acquisition strategy for HELLFIRE does not represent a 50%–50% split. Our current competitive strategy calls for awarding the contractor that bids the lowest cost 65% of the annual buy. The incentive of winning the larger annual award is what has helped to lower the unit cost of the Hellfire missile since this competitive strategy was initiated. An annual buy of 6000 missiles a year allows the Army to continue this competitive strategy; the lowest bidder gets 65% of the annual buy (3900 missiles) and the other contractor gets 35% (2100 missiles). The contractor winning the 65% will produce at his economic production rate and the competitor will produce at his minimum sustaining rate. The quantities in the current FYDP for the Army and Marine Corps will not allow production at economic production rate until fiscal year 1993.

Question. At the rate assumed in the budget, do two sources make sense for this program?

Answer. Yes, I think we need to maintain two sources. There is a price penalty during the fiscal years 1990–1992 time frame in maintaining two sources due to the low annual procurement; however, I think it will be worth it when we start production of the new Optimized HELLFIRE missile in the last part of fiscal year 1992. The increased annual buy for the Army and Marine Corps in fiscal years 1993–1994 and the dual source competitive strategy will help to keep the unit cost of this new Optimized HELLFIRE missile down.

Question. How much did it cost to develop the second source? Has that investment been recouped through lower prices due to competition?

Answer. Initially Rockwell built the missile bus and Martin Marietta built the seeker. It cost $33.9 million to establish the capability for both producers to produce the complete missile, i.e. both producers with the capability to produce the seeker and the missile bus. The Army has recouped this cost through lower competitive prices.

Question. The 1990 budget reflects a 25 percent unit cost increase, to $33,166.00, in the HELLFIRE missile. What is the reason for the increase and what improved capability is it designed to provide?

Answer. The unit cost increase is due to a planned production cut-in of an interim improved warhead and the uneconomical production quantity in fiscal year 1990. The planned improvement will restore full lethality of the missile against current applique threat armor.

PEDESTAL MOUNTED STINGER

Question. The fiscal year 1990 budget includes $115.8 million to buy 122 Pedestal Mounted STINGERS (PMS). The Army, which had been planning to dual source the program, has changed the strategy to a proposed multiyear procurement beginning in fiscal year 1991.

Why was this done, especially since there has been no change in the total requirement of 1207 units?

Answer. In the fiscal year 1990 POM the Army, for affordability, reduced PMS funding and straightlined the program at $118.0 million per year through fiscal year 1994. Although no change in total requirement (1207), this action essentially stretched out the program by reducing the total quantity that could be bought each year. Concern existed as to whether this stretch out made it economically beneficial to dual source the program.

Question. What economic analyses support the revised acquisition strategy?

Answer. An economic analysis (August 1988) was performed on the various strategies available by a consultant contractor without a vested interest in the program. The study indicated that the strategy with the greatest return on investment was sole source with Boeing as long as Boeing was required to obtain subsystem competition. The Army's acquisition plan reflects this strategy. If competition is required on the PMS system, the technical data package will require updating to Level III and the licensing rights invoked by the Government. The Government would be required to pay the prime an up-front lump payment of $9.5 million plus 8 percent of the net selling price of "PMS Systems" up to a royalty ceiling of $75 million. In addition, OSD recommended a multiyear procurement (MYP) strategy for PMS. The MYP analysis indicated $33.825 million or 9.4 percent savings over annual buys.

Question. What is the status of initial operational test and evaluation, and when do you hope to go to full rate production?

Answer. Phase I of Initial Operational Test and Evaluation (IOTE) will begin on 26 April 1989 at Fort Hunter-Ligget, CA. Phase II, missile firings, will begin at White Sands Missile Range, New Mexico in mid-July.

The decision to proceed with full rate production will be made by the Defense Acquisition Board (DAB), Milestone III B, currently planned for December 1989.

Question. Bring the Committee up to date on the launcher competition, which was encouraged by the Congress.

Answer. A draft RFP was issued in October 1988. Numerous responses were received from both large and small businesses. However, due to the large number of technical and program issues involved in the industry comments, definitive staffed answers for industry were not available until late February 1989. In addition, a security issue involving foreign owned domestic manufacturers is still lacking a final action. Finally, the package was submitted to the Small and Disadvantaged Business Utilization Office for review; this office has indicated a desire to set aside the procurement for small business. The Army has identified some concern with this recommendation. Pending resolution of this issue, the RFP has not been released.

AIR DEFENSE ANTI-TANK SYSTEM (ADATS)

Question. The ADATS program has received a sizable increase in the administration's 1990 budget. The 1989 appropriation is $84.7 million for 60 missiles and 5 fire units. The pending 1990 request of $351.6 million is for 424 missiles and 18 fire units. The Committee understands this program is a prime candidate for significant reduction under the Bush budget amendment.

The Test and Evaluation Master Plan (TEMP) for ADATS was approved in February 1989, is that correct?

Answer. Yes, the ADATS TEMP was approved on 13 February 1989.

Question. Did that action pave the way for obligation of the 1989 appropriation?

Answer. Yes, approval of the TEMP was a prerequisite for release of the fiscal year 1989 procurement funds under provisions of the fiscal year 1989 Authorization Act. Obligations will begin in April. The first obligations to the contractor will occur in June.

Question. What about the $23.8 million in advance procurement for fiscal year 1990? When do you hope to obligate that and what do you have to accomplish first?

Answer. Completion of an Interim Operational Assessment by the Director, Operational Test and Evaluation is the prerequisite for release of the fiscal year 1989 advance procurement under the provisions of the fiscal year 1989 Base Closure Act. This assessment will be completed in June 1989, obligations will begin in July 1989.

Question. There were two failures late last year in the test program. What are the causes and have corrective actions been taken? When do you hope to start testing again?

Answer. Both missile failures were caused by failures in the Control Actuator System (CAS). The first on 1 September 1989 was caused by a machining flaw which prevented the firing piston from fracturing the nipple on the high pressure gas bottle which provides helium to the CAS. The defective parts were replaced by ones qualified from a second vendor. The second on 21 November 1988 was attributed to a tolerance build up in the pressure actuator. This caused a mechanical failure of the regulator and prevented the helium from flowing in the CAS. The pressure regulator has been redesigned and vendors are being qualified for production. Contractor missile firings in the ADATS test program resumed on 31 March 1989 with a direct hit on a target board at 8 KM. A second firing was conducted on 5 April 1989 which resulted in a direct hit on a helicopter drone at 1.5 KM. Firings will continue in accordance with the ADATS TEMP.

Question. What pre-planned product improvements do you have in mind for ADATS? When might they be budgeted and how much do you estimate they will cost?

Answer. The ADATS Pre-Planned Product Improvement (P3I) program which begins in 1991 will: evaluate shortfalls discovered in testing; conduct integration engineering and test planning; and initiate design of the Block I P3I. Block I improvements and projected RDTE cost are: a Commander's Viewer for $3.5 million; a combination C2I interface, mission processor, and integrated weapons display for $16.9 million; and survivability and NBC improvements for $19.9 million plus integration definition planning at $.6 million.

Question. When does the latest schedule call for a full rate production decision and the first unit equipped? Explain the length of delay and reasons for any change since last year.

Answer. Based on the current budget submission a production decision is scheduled for April 1990 with the first unit equipped (FUE) by July 1992. Since last year the production decision has been changed by five months from November 1989 to April 1990. This change was caused by the need for additional testing to meet OSD and Congressional concerns on the system. The FUE has changed by eight months from November 1991 to July 1992 due to the additional testing requirements and budget reductions.

Question. Earlier contracts with the contractor have had to be reconsidered due to the program restructuring last year, is that correct? What is current status of the contract? Do you have any estimate for the additional costs which will be incurred due to the restructure?

Answer. The LOS-F-H acquisition strategy was unique in that the competing contractors were provided a funding profile and required to bid the total number of fire units with missiles they would deliver for these funds. The original contract had five procurement options based on the funding level in the January 1987 President's Budget. When the LOS-F-H program funding level was reduced in the February 1988 Amended Presidential Budget a restructure of the program and renegotiation of the contract was required. Currently the fiscal year 1989 production option is scheduled for award in June 1989 with definitization in January 1990. The modification to the contract for the remaining production options is scheduled to be completed by May 1990. This contract modification will be based on the current LOS-F-H budget submission. Due to the budget reductions the amount of hardware procured will be reduced probably increasing the procurement unit cost of the hardware. The amount of this additional cost will not be known until contract renegotiations are completed.

TACTICAL WHEELED VEHICLE MODERNIZATION PLAN

Question. You provided a brief summary of the Army's new tactical wheeled vehicle modernization plan in your opening statement. When will the plan formally be submitted to Congress?

Answer. The plan will be submitted to Congress on or about 20 April 1989.

Question. One of the elements of your plan is to acknowledge that the Army cannot afford to procure the entire authorized acquisition objective for all its tactical trucks. What is the difference between the procurement objective and the authorized acquisition objective?

Answer. The authorized acquisition objective is the grand total quantity required to equip the U.S. Army force and sustain that force in wartime from D-Day through the period prescribed in the latest Defense Guidance and/or The Army Plan. The procurement objective will meet operational requirements and reduce peacetime costs. The procurement objective fills first to fight and forward deployed units at 100 percent of requirements with modern vehicles within economic life and decrements later deploying units during peacetime as much as 30 percent. Vehicles in the later deploying units will be within or beyond economic life.

Question. For the five ton, 2.5 ton, HMMWV, and HEMTT trucks what is the current inventory, AAO, and procurement objective?

Answer.

	Inventory	AAO	Proc Obj
HMMWV	37,257	125,003	66,712
2½ Ton	67,106	70,869	54,072
5 Ton	49,106	82,408	70,128
HEMTT	11,176	20,009	13,139

The inventory includes substitute assets.

Question. Another element of the plan is the phasing-out of older trucks. How many five ton, 2.5 ton and other tactical vehicles will be taken out of the inventory in fiscal years 1989, 1990, and 1991?

Answer. Fiscal year 1990 is the first year of the phase-out plan. By the end of fiscal year 1990, 8364 M561 Gama Goats and 1881 older gas 2½ ton trucks will be retired. Also, 1176 GOERs and 1000 M123s will retire by fiscal year 1990, both are logistically unsupportable. Additionally, M880s and M151s will begin to be retired. Those retired first will be beyond economic life and will be from war reserve stocks, Operational readiness floats or in maintenance backlogs. As new tactical wheeled vehicles are procured and fielded, old tactical wheeled vehicles will be inspected and retired with emphasis on retirement. Specific quantities will depend on retirement mode selected (i.e. Foreign Military Sales or property disposal) and our ability to implement.

Question. For the record, provide the complete phase-out plan.

Answer. The Phase-out plan is currently being refined. Phase-out plans will be formulated annually for the current year. We are currently working with USAREUR, based on Modernization Plan identification of costs associated with overage vehicles, to eliminate old vehicles from their inventory. Fiscal year 1990 plans are currently being formulated. The projected plan is as follows:

	Quantity	Fiscal year
Type of vehicle:		
Gama Goat	8,364	1990
2½ Ton Gas	1,881	1990
M123	1,000	1990
GOER	1,176	1990
M880	19,200	1990–93
M151	12,195	1990–95
2½ Ton multifuel	11,900	1993–99
5 Ton	4,000	1993–99

Question. What savings in operation and support costs will be realized as a result of phasing out these trucks?

Answer. It is projected that removal of these vehicles from the Army's inventory will result in an O&S cost avoidance of $60.5 million in the first year and that this amount will continue to grow as additional trucks are phased out and replaced by newer, more cost-efficient vehicles.

Question. Another element of your plan is a Service Life Extension Program (SLEP). Describe this program.

Answer. The medium truck Service Life Extension Program (SLEP) is an integral part of the Medium Fleet Management Plan developed in the Modernization Plan. Purpose of SLEP is to upgrade a portion of the existing overage medium fleet through a combination retrofit/maintenance program. SLEP is intended as an interim rehabilitation effort until sufficient new vehicle procurement is in place to permit "normal" washout of vehicles, above the procurement objective as they exceed their economic life. In designing SLEP, various levels of maintenance/upgrade efforts were analyzed. Vehicle "remanufacture" was selected, based on factors such as affordability and length of time existing fleet will be retained in use.

Question. No funding for a SLEP is included in the current budget. When will this program be funded and what is the total cost?

Answer. According to the Modernization Plan funding levels, funding for SLEP production will be required beginning fiscal year 1993. Combination of OPA and OMA is required. Start-up funding of approximately $5.5 million (OMA) is needed in fiscal years 1990–

93. Total cost (fiscal year 1989 constant $) is estimated at $1.01 billion (fiscal year 1990–fiscal year 2002).

Question. What vehicles will be included in the SLEP program?

Answer. SLEP will upgrade selected overage portions of the 2½ and five ton vehicle fleet.

Question. What procurement strategy will be used for the SLEP?

Answer. Preliminary acquisition strategy is to accomplish the SLEP procurement on a fully competitive basis. A portion of the program will be accomplished in the Army depot system.

Question. Who in the Army will manage the SLEP program and where will the actual work be done?

Answer. SLEP will be managed by the Tank and Automotive Command with a dedicated program management cell.

Question. An independent study is now being done to validate the need for the 2½ ton truck fleet. When will this study be completed?

Answer. The study will be completed in May 1989.

Question. What alternatives are being considered in the study?

Answer. The study will address the Army's operational requirements for the 2½ ton variant of the FMTV and will provide a feasibility comparison of various fleet "mixes" composed of HMMWV and five ton vehicles versus a FMTV fleet to fulfill the same missions and roles. It will determine whether the same missions/vehicle roles could be satisfied more cost effectively with other vehicles such as the HMMWV and/or additional five ton FMTV trucks with trailers.

Question. Why is the study being conducted?

Answer. The study was directed as part of the FMTV Defense Acquisition Board program decision.

Question. The plan provides for a long-range funding level of about $800 million per year. However, the fiscal year 1990 budget only includes $446.3 million. Will this budget be increased in the Bush revision.

Answer. No. Fiscal year 1990/fiscal year 1991 were regarded as transition years; therefore, programs were not adjusted significantly and were considered as the basis for future development of the Tactical Wheeled Vehicle Modernization Plan.

Question. Is the $800 million per year funding level being maintained in the out-years of the Bush budget revisions?

Answer. Yes. In preparing the Army's Tactical Wheeled Vehicle Modernization Plan, the fiscal year 1990/fiscal year 1994 Budget/POM was not adjusted. Consistent stable funding set at the $800 million per year funding level approved by the Army leadership begins in fiscal year 1995.

Question. What does your plan provide with respect to maintaining a warm production base for the various tactical wheeled vehicles?

Answer. The plan recognizes the capacity and capability of the truck industry and attempts to apply leverage to this market. It provides a procurement program that is stable and gives corporate decision makers the basis for justifying necessary investment in tooling, manpower, facilities and development costs to meet stockholder and owner demands for long term viability and adequate return on investment.

FIVE-TON TRUCKS

Question. In May 1986, a five year multiyear contract was awarded for five ton trucks. The manufacturer has experienced significant problems in getting this truck into production. The beginning of initial production testing was delayed by more than six months until May 1988. Last year we were told that IPT would be completed by September 1988. What is your current estimate and why has it changed?

Answer. IPT completion is now scheduled for May 1989 and was delayed due to component (vendor) quality problems experienced by BMY.

Question. Last year we were told that full rate production of 700 vehicles per month would be achieved early this year. What is your current estimate and why has it changed?

Answer. Full rate production (FRP) is contingent upon successful IPT completion and FRP approval by DOD as an oversight program. Based on IPT completion May 1989, FRP approval in June 1989. FRP of 600 per month should be achieved by 1989 and in excess of 700 per month by May 1990.

Question. By how many vehicles is the contractor now behind his original contract delivery requirements?

Answer. BMY is 4,888 vehicles behind the original contract delivery schedule.

Question. Is the revised delivery schedule now on contract?

Answer. No. The revised delivery is currently being negotiated for incorporation into the contract.

Question. What penalties or other cost considerations resulted from the failure of the contractor to meet his original contract delivery schedule?

Answer. The following have been obtained as consideration for revision of contractor delivery schedule: a) no cost storage of vehicles increased from 240 to 300 days after start of IPT; b) Three additional vehicles and logistics support for IPT at no additional cost; c) contractor logistics support and maintenance test support package for user test at no additional cost; d) level III drawings for engine installation; e) warranty period starts after final government acceptance of vehicles, not conditional acceptance during IPT; f) four additional vehicles with system support package for 10,000 mile user testing at no additional cost and the contractor will respond to test incident reports; g) one additional vehicle and contractor support of rail impact test; h) level II drawings for arctic kits; i) incorporation of full flow thermostatic by-pass.

Question. Under the revised contract, when will the cumulative deliveries catch up to the original contract requirements?

Answer. October 1990.

Question. What is the minimum five ton truck procurement (dollars and quantities) that could be made in fiscal year 1990 without breaking the contract?

Answer. The fiscal year 1990 basic contract quantity is 4,176 trucks. Of these, 4037 vehicles for $283.6 million support direct Army requirments and 139 vehicles for $10.6 million support other customer requirements.

Question. Given the delivery delays, could the fifth year contract option be exercised in fiscal year 1991 instead of 1990?

Answer. Yes, if applied to contract before November 1990.

Question. When will the last deliveries of the five ton truck occur, under the revised contract, with and without a fiscal year 1990 procurement?

Answer. The last deliveries with the fiscal year 1990 procurement will be August 1991 and the last deliveries without the fiscal year 1990 procurement will be March 1991.

Question. When will the first five ton truck be delivered under the new Family of Medium Tactical Truck (FMTV) program?

Answer. March 1992.

Question. Given the serious initial delays that have occurred in every truck program in recent memory, what confidence do you have that your current estimate for FMTV deliveries is accurate?

Answer. The acquisition strategy provides for a three way competitive hardware test run-off that will be conducted prior to and in support of the production selection decision. The Army is confident of first vehicle delivery in March 1992.

Question. Does it concern you that there will be no warm production line for five ton trucks after mid-1991 until FMTV comes on line? Please comment.

Answer. The loss of, or inability to fully utilize, an existing and proven production base is always of concern because this usually indicates that requirements will not be met and the continuity of industry's involvement in the program is prematurely stopped. The Army has chosen not to fund the fiscal year 1990 program based on overall affordability and warfighting priority. Should the fiscal year 1990 program be funded, the production would be extended by six months, thereby reducing the production and fielding gaps between five ton trucks and FMTV.

Question. In fiscal year 1989, Congress appropriated funds to procure 3,104 five ton trucks. Why are you now expecting to procure only 3,074 trucks?

Answer. The decreased quantities is primarily due to the need to reserve $4.7 million in fiscal year 1989 funds for cancellation of the fiscal year 1990 program.

PALLETIZED LOADING SYSTEM

Question. The budget includes $43.3 million for the first procurement of the Palletized Loading System (PLS). Three contracts for prototype vehicles were awarded last January to Oshkosh, Paccar, and General Motors/MAN. Each contractor is to deliver nine trucks, six trailers, and twenty-seven flatracks for testing.

When will the production contract award be made and what criteria will be used in source selection?

Answer. The scheduled award date is April 1990. The source selection criteria is currently being finalized. The production selection will be based on a "best value" determination and will consider: production cost, vehicle performance capabilities, demonstrated vehicle RAM, projected vehicle RAM, life cycle cost, logistics implications, and contractor manufacturing capability.

Question. Congress has required that the Navy be the source selection authority for this program. What are the Army and the Navy doing to make this a smooth process?

Answer. The Navy Acquisition Executive (SSA) and the PLS Project Manager have established a direct channel of communication through a series of informational meetings and In Process Reviews. Prior to release of the solicitation for the prototype proposals, the SSA was provided the Source Selection Plan for his review and approval. The same procedure will be followed for the Source Selection Plan for the production contract award.

Question. When will the first production deliveries take place?

Answer. January 1991.

Question. What is the total procurement quantity and cost for PLS?

Answer. The projected total procurement for PLS fiscal years 1990–1996, is 4333 trucks, 103,000 flatracks, and 1,915 trailers for a total of $1,957.9 million in escalated (then year) dollars.

Question. Provide for the record the complete funding profile for PLS showing costs and quantities.

Answer. The complete projected funding profile for PLS, fiscal year 1990–96, is as follows in escalated (then year) dollars in millions:

	Trucks		Trailers		Flatracks		Total
	Qty	Dollars	Qty	Dollars	Qty	Dollars	
Fiscal year:							
1990	105	41.5	83	1.7	585	3.2	46.4
1991	784	226.8	342	6.8	3,379	19.4	253.0
1992	967	281.7	386	7.9	4,076	23.9	313.5
1993	948	276.3	378	7.8	3,972	23.8	307.9
1994	922	274.0	368	7.8	22,148	134.5	416.3
1995	607	183.7	358	7.7	34,420	212.8	404.2
1996	0	0	0	0	34,420	216.6	216.6
Total	4,333	1284.0	1,915	39.7	103,000	634.2	1,957.9

Question. For every new truck program in recent memory, there have been significant delays in deliveries because of production startup problems, testing problems, technical problems, quality problems and others. What are you doing in the PLS program to assure that these mistakes are not repeated?

Answer. Although some recent truck programs have experienced significant delays, there certainly have been successes in truck acquisition. The PLS program has incorporated two major features which aid in avoiding the problems cited in your question. First, the program has a prototype phase which will review technical and quality areas before the production contractor is selected. This will also allow evaluation of each contractor's quality, management and production readiness capability. Furthermore, the PLS program has the advantage that all three prototype contractors are current and experienced heavy truck producers. The Force Development Test and Evaluation (FDTE) of a PLS in October 1986 provided a basis for developing the PLS test program. We are continually coordinating with the British for "lessons learned" information from their recently completed Demountable Rack Offloading Pickup System (DROPS) test program for potential application to the PLS program. DROPS is conceptually similar to PLS. Second, the PLS is based on Non-developmental Item (NDI) concepts. The prototypes use a higher degree of commercial components and, as a result success should be assured.

Question. What is the overall acquisition strategy for PLS, including the racks?

Answer. The acquisition strategy has two phases. Under the initial phase, three contractors (GM, Oshkosh and PACCAR) are delivering prototypes for test and evaluation. Phase II will represent the production contract to be awarded on a five-year multi-year basis. This production contract will include the acquisition of a Technical Data Package. This drawing package will provide for secondary item breakout and alternate source identification to the maximum extent practicable. While Phase I was procured under full and open competition, Phase II is being restricted to (1) those firms awarded Phase I contracts, and (2) manufacture and assembly of the PLS in the United States per Section 259(c) of the National Defense Authorization Act for fiscal years 1988 and 1989. Low-rate initial production is planned prior to completion of initial production testing. Under the production contract, trucks will be procured with trailers and a limited number of associated flatracks (approximately 15,000). The balance of flatracks will be competitively procured using the technical data package which is deliverable under the system production contract.

Question. Are changes to this program being considered as part of the Bush budget revision?

Answer. This program remains as submitted in the fiscal year 1990/fiscal year 1991 President's Budget Submit.

HEAVY EXPANDED MOBILITY TACTICAL TRUCK (HEMTT)

Question. The fiscal year 1988 authorization act required that the Army buy 4,737 additional Heavy Expanded Mobility Tactical Trucks (HEMTT). To date, 2,654 vehicles have been funded, leaving an additional requirement for 1,783 vehicles. Why are only 69 HEMTT trucks included in your fiscal year 1990 and 1991 budgets?

Answer. The fiscal year 1990 budget does not fund the HEMTT because it is considered unaffordable based on its relative priority to other essential Army programs and limited available TOA. The 69 HEMTT trucks included in the fiscal year 1990–fiscal year 1991 budgets is for INF Treaty implementation. At the time the INF treaty was signed it was assumed that HEMTT would be in production through fiscal year 1991 as included in the Congressional language.

Question. What is your authorized acquisition objective for HEMTT and how many have been funded to date?

Answer. The authorized acquisition objective is 20,009 and 11,498 HEMTTs have been funded to date.

Question. How does your asset posture for HEMTT compare to that of other tactical trucks?

Answer. The following is a representative sampling of the authorized acquisition objective (AAO), preferred asset posture (does not include substitute assets), and percent filled:

	AAO	Preferred assets	Percent filled
HMMWV	125,033	37,256	30
2½ ton	70,869	58,000	82
5 ton	82,408	44,000	53
HEMTT	20,009	10,703	53

It is important to note that the procurement strategy developed within the Modernization Plan is not based on asset posture alone. For example, the HEMTTs, which are newer vehicles, will remain viable beyond the year 2000. Also, while the 2½ ton percent filled is 82 percent, due to the lack of procurement in recent years, the preferred assets applied to AAO will decrease to approximately 28,000 (39 percent) by 1992.

Question. What is the current production rate for HEMTT trucks and when will production end under your budget plan?

Answer. The production rate is being maintained at 6 per day. Production of the fiscal year 1989 and 1990 quantities will be completed in October 1990.

Question. With only 46 trucks funded in fiscal year 1990 and 23 in fiscal year 1991, it would appear that the production line will have to be stopped and started again. How much will this cost and are the costs included in your budget?

Answer. At the time the INF treaty was signed it was assumed that HEMTT would be in production through fiscal year 1991 as included in the Congressional language. The 46 trucks in fiscal year 1990 can be procured as an option quantity against the fiscal year 1989 contract. The remaining 23 may be procurable: however, their price is expected to escalate significantly.

Question. What would it cost to procure the 1,783 vehicles in fiscal year 1990?

Answer. The cost would be $317.8 million.

Question. The trucks in the 1990 and 1991 budget are for INF treaty implementation. To which specific units will they be assigned?

Answer. The trucks will be assigned to the following units: 1st Battalion, 9th Field Artillery Regiment; 4th Battalion, 9th Field Artillery Regiment; and 2nd Battalion, 32nd Field Artillery Regiment.

Question. The disestablishment of the Pershing II units will presumably free up hundreds of 10 ton trucks which were assigned to those units. Why can these trucks not be assigned to the units receiving the HEMTT?

Answer. The Army is preparing to sign a contract with Oshkosh Truck Corporation to convert the M983E1 tractors designed for Pershing II application to a Patriot configuration. Upon its completion all HEMTTs will have been utilized. There are 207 M.A.N. tractors and 79 M.A.N. wreckers in Europe and CONUS. The Army is currently studying the possible uses for these trucks. There are certain technical problems with follow-on use of the truck: a) trailer swing clearances on the tractors result in a marginal capability in towing some trailers. Suitable modifications have not been found to date: b) The M.A.N. truck has not been integrated into the Army logistics system. Consequently, we are dependent on contractor support. Because of these limitations, we have been unable to find a customer for the M.A.N. trucks.

MOTORCYCLES

Question. In fiscal year 1987 and 1988, Congress appropriated procurement funding for motorcycles. Last November, Dr. Sculley informed the Committee that "the lack of a strong advocacy and continued Army-wide budget pressures make it more than doubtful that the motorcycle requirement will be able to successfully compete in the internal prioritization process." What is the status of the Army motorcycle program?

Answer. The Army has revalidated its requirement for approximately 6000 motorcycles. Funding priority will be addressed in the fiscal years 1992–1996 program planning process. That process will determine if the need and budget will support a motorcycle program.

Question. Has the program been terminated?

Answer. Yes, as there are no funds programmed or budgeted, the current program has been terminated.

Question. For the record provide an audit of all prior year appropriations for Army motorcycles.

Answer. Audit is as follows:

[In millions of dollars]

Fiscal Year 1986	
Appropriated	$1,895
Reprogrammed to:	
HEMMT	.696
5 ton M939A2	.500
10 ton HET	.460
MAN truck	.171
TACOM in-house support costs	.068
Fiscal Year 1987	
Appropriated	$4.9
Reprogrammed to:	
HMMWV	3.941
Gramm-Rudman-Hollings withdrawal	.907
TACOM in-house support costs	.052
Fiscal Year 1988	
Appropriated	6.888
Reprogrammed to:	
Depot modification CUCV*	2.435
5-ton product improvement*	4.453

*Planned reprogrammings.

TACTICAL AND SUPPORT VEHICLE SPARES

Question. The total budget for tactical and support vehicles goes from $808.6 million in fiscal year 1989 to $446.3 million in fiscal year 1990. Yet the spares budget increases by 34 percent from $42.5

million to $56.4 million. In fiscal year 1991 it goes to $84.1 million. Please explain this apparent discrepancy.

Answer. The spares program supports the total density of end items, not just those end items procured in any one year. Initial spares support new end items being fielded and replenishment spares support the equipment already fielded. The majority of the spares requirements in fiscal year 1990 are for replenishment support, primarily for the aging 2½ and 5-ton truck fleet. The increased requirements in the fiscal year 1991 spares budget are driven primarily for initial spares support for FMTV, HET System, and FHTV.

GAS MASKS

Question. The M40/42 Gas Masks being procured offer a significant improvement in operational capability over the M17/24/25 protective masks currently in the field. The fiscal year 1990 Budget request before the committee for $65.9 million funds the procurement of over 436,000 masks from two production sources.

According to Army Congressional justification material each contractor will produce limited quantities of masks (about 10,000 each) as part of the fiscal year 1989 production contract. The fiscal year 1990 procurement will see each contractor producing slightly over 200,000 masks, a substantial increase in rate.

At what rate are both contractors presently producing the M40 and M42 Gas Masks?

Answer. Both contractors are now tooling up for full-scale production with first deliveries planned for October, 1989.

Question. Are you confident that each contractor will have the capability and ability to meet the requirements of the fiscal year 1990 production contract?

Answer. Yes.

Question. At what total production capability will each contractor be facilitized?

Answer. 25,000 per month.

Question. Do the production rates assumed for each contractor in the present Five-Year Defense Plan (FYDP) reflect economic rates?

Answer. Yes.

Question. At which point will the M40/42 masks completely replace the current masks in the field and war reserves?

Answer. It is projected, based on the current program, to take 5 to 6 years to replace the standard mask inventory.

Question. The Army is currently considering a pre-planned product improvement (P3I) to increase the mid and long term capability of the M40/42 masks.

Can you tell us what specific improvements the Army envisions for the M40/42 masks given the improvements in capability the system already offers?

Answer. A liquid agent resistant facepiece; A quick-doff hood which precludes agent transfer to the skin during entry/exit operations; A capability in all masks for microphone attachment which is interchangeable by the operator; and improved voicemitter with amplification system.

Question. When would the P3I program start to take effect?

Answer. Fielding will begin 4Q91.

Question. Would the existing inventory of M40/42 masks at that time be retro-fitted with the improvements, or would we be faced with the possibility of multiple versions of the mask?

Answer. Improvements to the mask will be provided to the field in kit form. The P3I does not result in recall nor replacement of fielded masks.

Question. According to the Committee's investigative staff, theater war reserve levels of the Army's current gas mask are way below authorized levels and furthermore, no new procurement of masks has taken place since fiscal year 1986.

Is this accurate?

Answer. The statement that theater war reserves are below authorized levels is correct for lower priority theaters. However, this applies only to M24 and M25 masks. Our highest priority theater, i.e. USAREUR, is currently over authorized stockage levels of masks. If the situation arose, we could cross-level to fill shortages elsewhere. The statement that no new procurement of the current masks has occurred since fiscal year 1986 is correct. At that time a contract was let to procure M40/42 masks (The replacement for the current issue).

Question. What factors drive the war reserve requirement for gas masks? Please provide detail for the record.

Answer. Concept: War reserves are distinct from other categories of materiel reserves for wartime use. They are specifically computed quantities of materiel acquired in peacetime to meet wartime sustaining requirements until procurement or production sources are able to produce at required levels to offset both combat and training losses after the war starts. Therefore, war reserves offset critical supply requirements which may or may not be obtained from the supply pipeline once the war starts. The following factors are used to compute war reserve mask requirements.

1. Troop strengths and equipment densities detailed in the Structure and Composition System (SACS).
2. Current approved end item usage, attrition, or consumption rates from program series studies conducted for HQDA by the U.S. Army Concepts Analysis Agency.

Generally speaking, requirements are computed as follows:

1. Troop strengths and equipment densities for each day to be supported are developed. Note: Densities and strengths change as units enter the theater.
2. The daily expected rate of usage, attrition, or consumption are applied to the troop strength or equipment density to compute the requirements for each day.
3. The day-to-day requirements are totaled to determine the overall requirement for the support period.

Question. Will this situation of shortfalls in the war reserve be avoided with the fielding of the M40/42 masks?

Answer. Yes, our procurement objective in the FYDP will fill stocks of M40/42 masks to authorized levels.

NUCLEAR, BIOLOGICAL AND CHEMICAL RECONNAISSANCE SYSTEM (NBCRS)

Question. The NBCRS is a fully integrated system employing an armored carrier capable of nuclear, biological and chemical reconnaissance wherever combat forces are deployed. The vehicle's mission is to detect, identify, and mark areas of NBC contamination quickly and accurately. Fiscal year 1989 Authorization Bill language required the Army to compete the procurement of the initial 48 NBC vehicles after original Army acquisition strategy called for the sole source procurement of an existing NBC system.

Can you tell us the present status of the source selection effort for the NBC vehicle?

Answer. Source selection is ongoing. A competitive Request for Proposal (RFP) was issued 14 September 1988. Two proposals were received and are being evaluated. Each candidate has been conditionally invited to provide two systems for a shootoff to be conducted 8 May–4 August 1989. The results of this test, along with the proposals, will be evaluated and a winner selected by 29 September 1989.

Question. At what point do you expect contract award to be made?

Answer. RDTE contract award is scheduled for October 1989. Exercise of the procurement contract option is contingent upon Congressional appropriation of the required fiscal year 1990 procurement funding.

Question. Source selection results concerning the two competing systems will not be available until the August/September 1989 timeframe. However, some assumptions concerning an outcome had to be made in order to construct an fiscal year 1990 budget estimate for the NBC system.

How did you account for the uncertainty of the source selection process in making your pricing assumptions for the budget request?

Answer. Pricing assumptions were developed using an independent government cost estimate which was based, in part on historical data from the XM87 NBCRS program. The XM87 program was to have integrated a similar NBC defense suite into an armored tracked (M113) chassis.

Question. Does the possibility exist that this program may become unexecutable if these assumptions don't occur as a result of source selection?

Answer. As with any system, there is a possibility the NBCRS program could be unexecutable with the current fiscal year 1990 budget estimate if the results of the source selection evaluation should grossly exceed the government's cost estimate. However, should this occur, the Army will evaluate program affordability and take appropriate action.

Question. After the production of the initial 48 vehicles, the Army plans on implementing a product improvement program in order to upgrade operational capability.

At what point in the procurement stream will the product improvements be incorporated?

Answer. The Army plans to implement an RDTE System Improvement Phase (SIP) concurrent with the production and fielding of the initial 48 vehicles. The SIP will improve the selected system to fully meet the user's required operational capability (ROC), make the system supportable by the standard Army logistics system and be type-classified standard. These improvements will be incorporated into the 49th and all subsequent systems produced.

Question. What will be the impact on the recurring hardware unit cost?

Answer. The recurring hardware unit cost of the type classified standard systems will increase as a result of adding the components which will provide the increased capability to fully meet the ROC. The unit cost increase will be partially offset by economy of scale savings resulting from an increased production run.

Question. Will the loser of the initial competition be allowed to compete for the follow on production of the improved vehicle?

Answer. The NBCRS proposals contain not-to-exceed price options for five years of follow-on production. It is the Government's plan to award follow-on production by exercising these options. However, should the Government elect not to exercise these options, the loser will be able to compete for follow-on production of the type-classified standard system after successful First Article/Initial Production Test and the Government's receipt of competitive technical data packages and the data rights for the chassis and NBC defense suite integration.

DEPLOYABLE MEDICAL SYSTEMS

Question. In the area of Medical Equipment, the fiscal year 1990 request includes $67.3 million for Deployable Medical Systems (DEPMEDS). DEPMEDS consists of "standardized modular groupings that can be configured into hospitals for use anywhere in a wartime theater of operations. The budget request of $67.3 million is a decline of $36.6 million, 37% from the fiscal year 1989 level." Comment in general, and then provide details for the record on the inventory objective for DEPMEDS.

Answer. The Army Acquisition Objective (AAO) is 156 hospitals configured in 7 different types of Army combat hospitals:

Combat Zone Hospitals:
- 25 Mobile Army Surgical Hospitals (MASH)—60 beds
- 27 Combat Support Hospitals (CSH)—200 beds
- 43 Evacuation Hospitals (EVAC)—400 beds

Communication Zone (COMMZ) Hospitals:
- 8 Station 300 Hospitals (STA 300)—300 beds
- 4 Station 500 Hospitals (STA 500)—500 beds
- 20 Field Hospitals—400 beds
- 29 General Hospitals—1000 beds

Question. Provide details for the record on the present status of that inventory.

Answer. The present status of that inventory is as follows:

Fiscal year 1984 to fiscal year 1994 procurement	156
Fiscal year 1989	115
Fiscal year 1990	+10
Fiscal year 1991	+7

Question. What reductions were made in this request in the internal Army budget preparations?

Answer. The amount requested in the President's Budget actually exceeds the funding level included in the Army's original submission to the Department of Defense (DOD).

Question. Do you anticipate any further reductions in the present ongoing internal DoD "budget scrub?"

Answer. No. DOD continues to support procurement completion by fiscal year 1994 as per the President's Budget submit.

Question. Is the equipment funded in past appropriations for DEPMEDS arriving into the inventory in a timely manner?

Answer. A 2–4 year funded delivery period (FDP) from procurement to fielding was planned for the original DEPMEDS program. An initial 4 year FDP was assumed. Improvements in purchasing and contracting/assembly were envisioned resulting in improving the FDP to 2 years by program completion. The Army is currently experiencing a 3 year FDP with most medical investment items with the Defense Personnel Support Center/Defense Depot Ogden, Utah, as source of supply/assembler. Total Package Fielding (TPF) procedures ad directed by the Vice Chief of Staff Army also contributed to the 3 year FDP. Most nonmedical investment items are experiencing a 2 year FDP with the U.S. Army Troop Support Command as the source of supply and Tooele/Tobyhanna Army Depots as consolidated storage and shipping points. We are presently fielding one hospital every other week.

Question. Provide for the record the extent to which DEPMEDS which are in storage, are deployed to the field for field exercises and the amount of training that medical and medical support personnel receive as a result of those exercises.

Answer. The training strategy for the DEPMEDS system consists of three phases: new equipment training (NET), institutional training and unit readiness sustainment training. NET is provided to gaining unit personnel to assist the unit in attaining its initial operational capability (IOC). NET is conducted at unit home station for active component units and at either the Academy of Health Sciences (AHS) or a Regional Training Site—Medical (RTS-Med) for reserve component units. Institutional training for operators of DEPMEDS equipment is conducted by AHS through officer and non-commissioned officer courses and focuses primarily on new items of equipment. Institutional training for maintainers of DEPMEDS equipment is conducted at the U.S. Army Medical Equipment and Optical School at Fitzsimons Army Medical Center. The third phase of the DEPMEDS training strategy involves unit readiness sustainment training. Active Component units are issued DEPMEDS for operational (contingency) purposes and routinely maintain training proficiency with their on-hand equipment. Reserve Component units are issued Minimum Essential Equipment for Training (MEET) sets for individual/squad level sustainment at the home station. These units are also regularly scheduled for unit level sustainment training at a RTS-Med. Due to the aforementioned training strategy there is no requirement to remove DEPMEDS equipment sets from their storage location for training purposes. Removal could cause premature degradation of equipment serviceability and the equipment is therefore not routinely available for field exercises.

Question. Is the decline in the funding for DEPMEDS in fiscal year 1990 driven solely by budgetary constraints, or are there any other factors involved?

Answer. Affordability has been a major issue. Army plans submitted in the fiscal years 1990–94 Program Objective Memorandum were subsumed by Defense Resources Board (DRB) guidance to complete the program to the level of its present requirement of 156 hospital sets. Some flexibility was afforded the Army by stretching the procurement from fiscal year 1991 to fiscal year 1994, which also stretched fielding through fiscal year 1996. The program continues on pace with DRB guidance.

MEDICAL SUPPORT EQUIPMENT

Question. The Medical Support Equipment line provides funds for "commercially available equipment required to support health care programs in Army fixed medical treatment facilities and activities worldwide." A total of $60.6 million, and increase of $2.3 million, is requested for fiscal year 1990.

Comment in general, and provide details for the record, on the current requirement for medical equipment at fixed Army locations vis a vis the five year defense plan to provide that equipment.

Answer. Funding level throughout the five year defense plan is the minimum required to equip new hospitals. However, the normal replacement/modernization cycle of obsolete and worn-out equipment, as recommended by the American Hospital Association, is extended.

Question. Describe to the Committee the process of selecting what mix of equipment is selected to be included in the budget request for medical support equipment?

Answer. Once a user requirement is initiated, medical chain-of-command approval is based upon propriety of need at the command and/or The Surgeon General level. That approval is determined by command approval thresholds and the unit price of the requirement. When approval is granted, Program Budget Advisory Committees (PBAC) at the installation, Major Command and DoD Health Council level determine funding priorities.

Question. From your perspective, is there a proper balance between the funds spent on new Construction for fixed medical facilities, plus the ongoing operations of fixed medical facilities, vis a vis, the providing of new medical equipment to be procured for those facilities?

Answer. In accordance with Title 10, U.S.C., Subchapter I, Military Construction Section 2801, fully equipping new hospitals remains the first priority. Equipping is accomplished by (1) equipment transfer, (2) utilization of available excess and (3) competitive purchase, in that order. However, under the current budget constraints, the replacement/modernization cycle of existing equipment is extended.

HOST NATION SUPPORT

Question. $122.3 million is requested for fiscal year 1990 for Host Nation Support. This is an increase of $64.9 million from the fiscal year 1989 level. These funds are for a program to West German Reserve units to ensure adequate West German support for U.S. rapid reinforcement and resupply efforts in crisis and war. What accounts for the large increase in the fiscal year 1990 budget request?

Answer. The original program projected a requirement in fiscal year 1990 of $43.5 million. This estimate was made in the early 1980's. A review by USAREUR indicated a shortfall in the funding stream for procurement of German sourced equipment. The Army reviewed and the Department of Defense approved an increase to this program in order to complete all procurements required by the U.S./German agreement. The following contributed to the requirement for additional funds:

Currency fluctuation.—When first estimated, the currency rate was approximately 3 Deutsche Marks (DM) to the dollar. It is currently 1.6 DM to the dollar.

Inflation.—Substantial price increases in the commercially procured equipment. There are 274 separate items of equipment being procured by the Germans. Examples of the equipment procured are: Tools and test equipment, communications equipment, Nuclear, Biological, and Chemical equipment, medical equipment and generators.

Table of Organization and Equipment (TOE) Changes—Changes to refine the original TOE unit structure and realign site locations.

Question. What percentage of the funds requested are scheduled to be used to procure U.S. equipment?

Answer. Thirty-one percent of the fiscal year 1990 request will be used to procure U.S. equipment.

Question. Provide a list of the equipment to be procured with the $122.3 million request. Include the specific equipment, the quantity to be procured and the cost of each type of equipment.

Answer. The equipment breakout for fiscal year 1990 is as follows:

[Dollar amounts in millions]

		Quantity
Heavy equipment transporter	$11.5	38
Forklifts	25.9	361
Total U.S. Procurement	37.4	
German Sourced Equipment: (Types of equipment being procured include: Vehicles, Decon Equipment, Signal Equipment, POL Equipment, Generators There are over 274 different items.)		
Korean Combined Defense: Improvement Projects (Quantity and types of equipment have not yet been determined.)		1.5

Question. Is fiscal year 1990 the last year in which procurement funds are to be provided for the Host Nation Support Program?

What additional outyear funding is anticipated for this program in accounts other than procurement?

Answer. Yes, fiscal year 1990 completes all procurements as required by the U.S./German Host Nation Support Agreement. Additional outyear funding requirements are as follow:

	Fiscal years—			
	1991	1992	1993	1994
AMMO	18.0			
MCA	2.5			
OMA	22.5	22.5	22.4	22.5

PETROLEUM EQUIPMENT

Question. Within the total request for "Petroleum Equipment", the largest single program is $42.1 million for the Southewest Asia Petroleum Distribution System (SWAPDOP). The objective of this program is to provide a bulk petroleum distribution system to meet the requirements of the Central Command (CENTCOM) for Southwest Asia. The justification book states that CENTCOM) has requirements for nine separate operational areas requiring bulk petroleum distribution systems. What portion of these requirements have been met by past funding?

Answer. The CENTCOM area of responsibility has been divided into nine separate geographic areas, five of which will utilize Host Nation Support HNS) and four of which will require SWAPDOP bulk petroleum distribution equipment. Based on the total requirement for the four SWAPDOP operational areas, the Army will have procured 46 percent of the requirement through the fiscal year 1990 FDP.

Question. What, if any, delays are you encountering in implementing contracts with funds provided in fiscal year 1989 or earlier, for the Southwest Asia Petroleum Equipment Program? Provide details on the reasons for the delays.

Answer. Because of integration problems experienced during the initial procurement of pipeline sections and associated couplings under two separate contracts, a solicitation was issued using a total package concept for the remaining requirement of pipe and couplings on July 1988. The solicitation called for an unrestricted, two-step sealed bid, with a Firm-Fixed-Price (FFP) requirements type contract award to one contractor responsible for both the pipe and coupling. Through this approach, pipe and coupling integration responsibility was given to a single prime contractor, solely responsible for the production and delivery of the equipment. A protest against the solicitation was filed with the General Accounting Office by LaBarge Products, Incorporated on August 1988. The protestor, who was the previous producer of couplings, claimed that the Army had unduly restricted competition through the total package procurement approach. The GAO decision was handed down in favor of the Army on November 1988, and contract award was set for May 1989. A recent delay in obtaining certified cost and pricing data from the qualified bidder, Reynolds Metals, required rescheduling of award of the fiscal year 1988 and fiscal year 1989 program to August 1989. No further delays are anticipated.

NON-SYSTEM TRAINING DEVICES

Question. A total of $140.3 million, an increase of 35% from fiscal year 1989, is requested for "Non-System Training." This program procures "state-of-the-art" devices and simulators to enhance training and minimize the impact of training constraints."

A major initiative within Training Equipment is $19.8 million for procurement in a program referred to as WESS (Weapons Effect Signature Simulator).

Describe this program to the Committee.

Answer. The WESS program consists of two different simulators. They are the Automatic Weapons Effect Signature Simulator (AWESS I) and the Main Tank Gun Weapons Effect Signature Simulator (MTGWESS). AWESS Devices consists of visual and aural effects signature simulators for the Vulcan and M2/3 Fighting Vehicle. The operating principle of the system is to combine oxygen and methane in a combustion chamber and ignite the mixture to produce an explosion which simulates the weapons firing. The fuel and oxygen are contained in pressurized bottles. The driving factor for the development of AWESS I is to achieve the capability for engagement simulation training for weapons systems without blank ammunition. The MTGWESS is a flash, bang, and smoke producing device designed to simulate main tank gunfire. The device is electrically activated through the main gun trigger switch, and is used in Multiple Integrated Laser Engagement System (MILES) and Tank Weapons Gunnery Simulation System (TWGSS) exercises to assist in acquiring and identifying firing tanks. It has a 60-shot capability for M1, M1A1, M60A3, and M551 vehicles. The MTGWESS is planned for active and reserve components worldwide fielding. The device will also be used in conjunction with the Remote Target System (RETS).

Question. Is this program an NDI (Non-Developmental Item) approach or has it been an RDT&E program?

Answer. Both of these devices are NDI-Integration. The AWESS I had a successful First Article Test (FAT) in November 1987. It is presently undergoing field evaluation to determine supportability. Full scale production will begin in early fiscal year 1990. MTGWESS will also begin full scale production in fiscal year 1990.

Question. The justification book mentions that the driving factor for this program is to "achieve the capability for engagement training with the avoidance of the procurement of expensive blank ammunition." What level of net savings do you anticipate will accrue from proceeding with this training program?

Answer. As stated in the budget submission, the Army is avoiding the procurement of expensive blank ammunition. This type of blank ammunition does not exist and will not be developed. Early in the conceptual development of AWESS I an analysis was performed to determine an alternative to AWESS I requiring the development of large caliber blanks. The use of gas in a combustion chamber was the result. AWESS I gas costs will equate to less than one cent per shot. The estimated cost for blank ammunition is $20–50 per brass round and $1.50 per plastic round.

Question. Assuming the funds for this program are available on October 1, 1989, when do you anticipate contract execution and at what point in time would the training equipment become available to the Army?

Answer. The AWESS I contract will be awarded in January 1990, with delivery scheduled from November 1990 through October 1991. The MTGWESS contract will be awarded in October 1989, with delivery scheduled from April 1991 through October 1991.

Question. A total of $21 million is requested for the "Anti-Tank Guided Missile Trainer" program. This will provide a simulator to sustain the gunning skills of TOW and DRAGON gunners.

Provide for the record the amount of funds requested for the TOW training devices within the overall request.

Answer. The TOW training devices portion of this program for fiscal year 1990 is $10.7 million.

Question. Provide for the record the anticipated date of delivery of this equipment in the inventory, assuming the procurement funds are available on October 1, 1989.

Answer. Delivery information for the fiscal year 1990 TOW training device portion of this contract.

	Fiscal year—		Total
	1990	1991	
TOW indoor	168	82	250
TOW outdoor	200	100	300

LOGISTICS SUPPORT VESSEL

Question. Pending before the Committee is reprogramming FY 89–4N, which requests the transfer of $9.9 million from the "Ribbon Bridge Erection Boat" program to the "Logistics Support Vessel" program. Describe to the Committee the role of the Logistics Support Vessel.

Answer. The distance between ports in Southwest Asia (SWA) precludes movement of supplies or troops between areas of operations without substantial use of intratheater lift provided by the Logistics Support Vessel. The concept of operations for SWA calls for widespread use of intratheater shipping.

Question. What is the urgency of procuring an additional Logistics Support Vessel at this time?

Answer. Trinity Marine (formerly Moss Point Marine), Escatawpa, Mississippi, was awarded the Logistics Support Vessel contract in fiscal year 1986. Four vessels were procured. The last of these vessels was delivered on 11 June 1988. The Trinity Marine contract can be modified to incorporate an additional Logistics Support Vessel and it is estimated that a cost savings of over $2 million would be realized by utilizing this contract. The urgency exists since the contractor's production line cannot remain open indefinitely.

Question. These funds would procure a fifth Logistics Support Vessel. Does the Army have a validated requirement for five such vessels?

Answer. Yes. The original requirement was for five vessels; however, force structure and dollar constraints limited the acquisition in fiscal year 1986 to four vessels. Funds have been identified and the Army National Guard has indicated they would accept and crew an additional ship.

Question. The reprogramming document states that the fiscal year 1988 Ribbon Bridge Erection Boat program "will not be executed due to the current contractor's quality control and financial problems."

At what location was this boat supposed to have been manufactured?

Answer. The Bridge Erection Boats are being manufactured in North Charleston, South Carolina.

Question. Does the Army have a validated requirement for such a boat, and if so, do you anticipate rebidding a contract in future years?

Answer. Yes, the Army has a validated requirement for the boat. It is one of the major elements of the Ribbon Bridge System, the Army's primary floating bridge system. At the present time enough Bridge Erection Boats exist to satisfy current requirements. However, boats are approaching their life expectancy of 25 years and will soon need to be replaced. Current plans call for a rebuy starting in fiscal year 1992.

Question. What, if any, loss would the government incur by not executing the contract for the Ribbon Bridge Erection Boat?

Answer. The government would be obligated to pay cancellation costs for terminating the final year of the multiyear contract. This cost will not exceed $600,000,000.

[CLERK'S NOTE.—End of questions submitted for the record.]

TUESDAY, MARCH 21, 1989.

AIRCRAFT PROCUREMENT, AIR FORCE

WITNESSES

HON. JOHN J. WELCH, JR., ASSISTANT SECRETARY OF THE AIR FORCE FOR ACQUISITION

LIEUTENANT GENERAL RONALD W. YATES, PRINCIPAL DEPUTY ASSISTANT SECRETARY FOR ACQUISITION

INTRODUCTION

Mr. MURTHA. The Committee will come to order. This afternoon's hearing will be on the budget request for Air Force Aircraft Procurement. This account, for which nearly $18 billion has been requested, is the largest investment account which the Committee reviews. Included in the total is $8.4 billion for combat aircraft, $2.2 billion for aircraft modifications, and $4.0 billion for spares and repair parts.

Pursuant to a motion made and passed in open session, this hearing is held in Executive Session due to the classification of material to be discussed.

We are pleased to welcome today John J. Welch, Jr., the Assistant Secretary of the Air Force for Acquisition, and Lieutenant General Ronald W. Yates, the Principal Deputy Assistant Secretary. Mr. Secretary, you may proceed. Please summarize your statement to allow maximum time for the questions to follow.

SUMMARY STATEMENT OF MR. WELCH

Mr. WELCH. Thank you, Mr. Chairman.

General Yates and I are pleased to be back.

I think the preferable way is to put the whole statement in the record and just proceed with the questions if that is okay.

Mr. MURTHA. We would like that.

[The joint statement of Mr. Welch and General Yates follows:]

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEE ON DEFENSE
HOUSE OF REPRESENTATIVES

SUBJECT: AIR FORCE AIRCRAFT PROCUREMENT

STATEMENT OF: HONORABLE JOHN J. WELCH, Jr. ASSISTANT
SECRETARY OF THE AIR FORCE (ACQUISITION)

LIEUTENANT GENERAL RONALD W. YATES
PRINCIPAL DEP ASST SECRETARY (ACQUISITION)

March 1989

NOT FOR PUBLICATION UNTIL RELEASED
BY THE COMMITTEE ON APPROPRIATIONS
UNITED STATES HOUSE OF REPRESENTATIVES

Mr. Chairman and Members of the Committee:

I am pleased to appear before you to review the Air Force's proposed acquisition activities for Fiscal Year 1990 and 1991.

In my testimony today I will focus on the progress and plans for aircraft procurement within the overall acquisition budget. Please note that the written statement I am providing today is based on the Reagan budget. Our formal Acquisition Statement will be provided to you when the amended budget is complete.

In rapidly changing times the best results often accrue from steadfast progress along a reasoned path with a responsiveness to opportunity which is tempered by history lessons and common sense. The United States Air Force Acquisition Program outlined in this report is designed to provide the systems and equipment needed by our Aerospace forces to implement our basic military strategy of deterrence in the most efficient manner possible. This program has been formulated against a background of political and technological change of unprecedented magnitude. While Soviet statements and proposals show remarkable reversals in world view and internal workings, those statements are most remarkable for their difference from past Soviet words and actions. They are not yet remotely similar to what we hear and see every day in modern democracies. In addition, General Secretary Gorbachev, though extraordinarily successful to date, is vulnerable in his own country to the consequences of failure. Therefore, we must base our military planning, and therefore our development and acquisition of new systems, on the current capabilities of the Soviets, not their early proposals or our own tendency toward optimistic evaluation of their intentions.

The Soviets do not represent our only concern in the world. Our close neighbors in Central America, our friends in the Middle and Far East, in Africa and South America face challenges to their security which could result in a call for our assistance. In addition, in some countries of the world there is bitter hostility toward the US, demonstrated by both words and action in the form of terrorism. We must therefore be prepared to support our friends, and protect our vital interests wherever they may be threatened. This demands the flexibility to participate throughout the spectrum of conflict, from low-intensity conflict to strategic nuclear war. That flexibility can not be created in one year or one budget. It requires a solid, continuing balance of readiness, sustainability, and modernization, all applied to a sound underlying force structure.

The Air Force budget which supports the Acquisition Program outlined in this report was painstakingly crafted to keep our aerospace forces on a stable, prudent course for ensuring US security, balancing current readiness and sustainability with future investment. The programs in it were chosen carefully to continue the modernization of existing force structure while using economical production rates and multiyear contracting to replace older systems. The new systems proposed here take advantage of our newest sophisticated technology to incorporate higher reliability and better supportability at lower cost. In our deliberations we sought a balance among required military capability, program priorities, and budget realities.

The Air Force has kept steadiness and fiscal responsibility in mind as it prepared its budget request. Funding stability will allow us to realize the cost efficiencies and economies we have built into this budget. Given the funding, our success will depend on our ability to get the most from every dollar allocated to us.

We continue to emphasize people as the first asset to develop and support. The Air Force has traditionally led the services in acquisition training. We have long recognized that acquisition demands the dedication of highly talented and trained military members and civilians to a career in this specialized field. Certification of qualifying individuals, now underway, will provide us a pool of the finest acquisition managers in the Department of Defense.

Our remaining priorities for this budget are:

Modernize strategic forces

Maintain a high level of readiness and sustainability

Increase airlift capability

Modernize tactical forces

Increase the use of space in military operations

SCIENCE AND TECHNOLOGY

Strong support of our Science and Technology (S&T) program is vital to maintaining the technological edge of our military forces. We have long based our military strategy on the premise that the technological quality of our equipment will overcome the existing Soviet lead in quantity. Our funding in this area will continue investments in the National Aero-Space Plane technologies, space and missile technology, directed energy technology, advanced materials, geophysics, and improvements in information systems both in weapon systems and in their support systems.

STRATEGIC MODERNIZATION

The strategic modernization program, our number one priority, will ensure that our forces and associated command, control and communications are ready, sustainable, and survivable to meet their peacetime and wartime missions. The Air Force responsibilities in this program are:

Improvement of capability including accuracy, and reduction of vulnerability of land-based missiles

Modernization of the strategic bomber force and their weapons

Improvement of our command, control, and communication system

To meet these responsibilities, the budget continues the procurement and deployment of the Peacekeeper missile and development of the Rail Garrison basing mode for Peacekeeper. Bomber modernization, through deployment of the B-1B, assures our most versatile leg of the strategic Triad retains credibility while the B-2 Advanced Technology Bomber development and production program prepares to fill the long-term requirement. Continued modernization of B-52s and their transition to a standoff cruise missile role coupled with the deployment of the B-1B and B-2 maximizes the capability of these systems in today's environment. To accompany our bombers, we continue to pursue updated weapons, including the Short Range Attack Missile II (SRAM II), the Advanced Cruise Missile, and the HAVE NAP medium range precision guided standoff conventional missile.

Strategic defensive forces enhance deterrence by providing integrated tactical warning and attack assessment capabilities to detect, identify, and characterize attacks against North America. We are continuing modernization of our ballistic missile and atmospheric warning systems, as well as upgrading our ability to process and disseminate integrated warning at the Cheyenne Mountain Complex.

The modernization of strategic command, control and communications will be pursued through programs such as the Milstar system, the Ground Wave Emergency Network, and the Defense Satellite Communications System, among others. These systems complement one another. Together they provide high confidence our strategic C3 systems will survive and endure through all phases of conflict.

READINESS AND SUSTAINABILITY

Ensuring our weapon systems can fulfill their mission requires appropriate numbers of trained operations and support personnel; sufficient levels of training and war reserve munitions; and adequate stocks of peacetime and wartime spares, repair parts, and equipment. In the current constrained fiscal environment, our best efforts are directed at optimizing readiness through improved training and balanced logistics support. For training, our most significant initiative continues with the development of the dual track pilot training system. For spares and repair parts, we are starting to lose ground as reductions in the spares account begin to affect 1990 readiness.

FORCE PROJECTION

The objective of force projection is to get a sufficient quantity of personnel and equipment to the right place at the right time. Resolution of our long-standing shortfall in airlift capability will be accomplished through the upgrade/modification of current systems and through the development and/or procurement of new systems. The KC-10 Extender program enhances strategic mobility cargo capability while improving refueling support for Navy and NATO fighters. Acquisition of the C-27A will provide a small, rugged, short takeoff and landing aircraft for theater airlift. The C-17 will provide additional airlift capability plus allow us to approach the fiscally-constrained goal of 66 million ton miles per day.

TACTICAL AIR MODERNIZATION

We must remain capable of countering any conventional threat in a decisive, timely manner. Modernization of our tactical forces is being pursued through a number of programs. Given current budgetary constraints, to protect our combat readiness and sustainability while modernizing the force, we will draw down to 35 Tactical Fighter Wing Equivalents from 37. We will continue procuring the F-15E and F-16s, while developing the Advance Tactical Fighter and, with the Navy, the Advanced Tactical Aircraft. To maximize the capabilities of the force, the Low Altitude Navigation and Targeting Infrared System for Night (LANTIRN) is being deployed, the improved performance fighter engines will be evaluated, and a variety of new munitions are being developed and procured. These new munitions will arm our forces with several new and improved capabilities in air-to-air and air-to-surface roles.

Modernization of our E-3 Airborne Warning and Control System will continue its support of our tactical forces. Equally important, though, will be maintaining the E-3 as a flag ship of the nation. We must ensure it is survivable, and capable of meeting the changing threat both as a strategic and a tactical resource.

SPACE OPERATIONS

US forces increasingly rely on space-based systems for communications, surveillance, warning, and weather data to support operations in both peace and conflict. Consistent with national and DoD space policies, we will continue efforts toward assured mission capability, balanced against operational requirements and fiscal priorities.

Our successful launch recovery program has seen the return to flight status of each class of vehicle that was operating at the time of the Challenger disaster - Atlas, Delta, Titan, and of course, the shuttle. We have also had the first flight of a new generation of expendable systems, including the Titan II and Delta II; the Titan IV will be operational soon. Likewise, enhanced capabilities for our forces will be achieved with new capabilities such as the Global Positioning System of navigational satellites, the next block of Defense Meteorological satellites, and the survivable Milstar communications system.

SPECIAL OPERATIONS FORCES

Special Operations Forces (SOF) must be able to conduct a wide range of missions at all levels of conflict in order to provide the US with unique options where the use of large conventional forces would be premature, inappropriate, or infeasible. These forces are typically used to resolve crises and to terminate conflicts that are still at relatively low levels. The Air Force is procuring additional MC-130s, AC-130s, upgrading H-53s to the MH-53J PAVE LOW "Enhanced" configuration, and is participating with the US Navy in development of the V-22 aircraft in order to acquire the CV-22A version for SOF missions.

The activities I've presented here today represent a carefully balanced program. Sustaining efficient production and economical production rates can maintain the balance if stable funding backs it. We are committed to support these activities, and ask for your support.

Thank you, Mr. Chairman, for the opportunity to make this statement. We will be happy to answer your questions.

MC-130H AIRCRAFT

Mr. **MURTHA**. Let me ask about the MC-130H aircraft.

I was down in Florida recently and looked at the MC-130s. I was looking at the 130Hs at Patrick Air Force Base——

Mr. **WELCH**. That is the earlier version. I believe you were looking at the Combat Talon I. It is the Talon II that is in flight test at Edwards.

Mr. **MURTHA**. They had all kinds of things that they were interested in that they felt needed to be changed.

This, I assume, changes those things?

Mr. **WELCH**. The MC-130H program has been worked very hard. There is to be a retrofit of some significant part of that capability to the Talon I, which you saw.

Mr. **MURTHA**. So the program last year was restructured?

Mr. **WELCH**. Yes, sir.

Mr. **MURTHA**. Last year the Combat Talon II program was restructured. The bottom line is that an additional $357 million is needed during four years to complete the planned buy of 24 aircraft. Is that accurate?

Mr. **WELCH**. That is correct.

Mr. **MURTHA**. So the total program acquisition cost is estimated to be $1.6 billion instead of $1.25 billion. Unit costs increase from $52.2 million to $67 million.

What happened here?

Mr. **WELCH**. I think you have the procurement unit cost. The unit fly-away cost numbers that we are showing are an increase that went from $47.5 up to $62.3 million after restructure.

I think several lessons are to be learned from what happened in the program. If we go back to the origination, the Talon II is a good example of apparently having off-the-shelf capabilities that satisfy a user's requirement, and in those days, I think a user who was just getting started in trying to define his requirement.

If you start with a radar—it was determined that a simplified version or a version of a simplified F-5 radar would be adequate to do the job. It just was wrong. Even before the procurement started, it was known that it was a much bigger challenge in terms of the things that this radar needed to do if it were going to meet all of the requirements specified by the Special Operations Command people.

So the program was, in looking at off-the-shelf, also using effectively all of the learning and equipment from the HH-60D program, the helicopter program, which was subsequently cancelled. The R&D money that would have supported this program effectively went with the HH-60.

So the first thing we learned is that we really need to spend the time, and invest and understand all of the requirements that need to be fulfilled understood on both sides by the user and by the developer.

The second was over optimism with respect to what could be bought off the shelf. For example, the terrain avoidance/terrain following radar, there was no real consideration at the beginning of the program that this was an absolute requirement. So these things grew over a period of time.

Two years ago, we said we have to stop and look at two things. One, with respect to where we were in the program in terms of its probability of success; and second, to make sure that we had coupled the support concept, the various levels of maintenance, with the way that the aircraft was going to be used.

That is what caused the restructuring of the program. So we believe now that 6 months in the original program, is all that had been allowed for operational testing. We have a test program that goes 19 months now and I think that is representative of the difficulties.

We had a full and open competition. But the complexity of radar was not recognized and a contractor was picked that had never built it. The software integration was originally going to be done because it was off the shelf and from the same contractor that was doing the helicopter program who obviously didn't get that transfer.

Mr. MURTHA. Was it IBM that did the software integration?

Mr. WELCH. They did the system, Emerson did the radar.

Mr. MURTHA. You made an award of $12 million for IBM. What was that for?

Mr. WELCH. In the very beginning of the program, you mean?

Mr. MURTHA. Well, as part of the shortfall, as I understand it, you include an award to IBM of $12 million. Yet they have had a 25 percent cost overrun. I am asking why did they get the $12 million? What happened there?

Mr. WELCH. I can't identify that specific $12 million per se, but the program had to be restructured to look at both the radar and the integration. They were beyond their ability to perform on that contract and there was enough contractual openness in the terms and conditions to restructure.

Mr. MURTHA. The staff understanding was that IBM was ready to walk away from the contract and there was a $12 million fee awarded——

Mr. WELCH. That is award fee. Yes, sir. Provisions that are made in the contract, following all of the contractual terms and conditions, that they can, in fact, qualify for in this restructure.

In restructuring, we want to incentivize. It is pretty difficult to have anyone continue working at strictly a loss point, but I can assure you in the terms and conditions, there was sufficient question on the government side as well as on the contractor side that the incentivization was appropriate.

It goes again back to the requirement, how much of the requirement has to be fulfilled, when, and what were the conditions under which we pursued it, like 6 months only of flight-test support.

Mr. MURTHA. The $357 million shortfall includes $125 million in 1989, which the Air Force intends to reprogram from other programs. What is the status of that reprogramming?

Mr. WELCH. It is basically ready to come over, and we really need that activity by the early part of this summer if we are going to keep the contract we presently have in place. So if you are talking about status, it is in the process of coming over.

Mr. MURTHA. What does that mean in ordinary terms? It will be here next week or the week after that? Is it being held up because you don't have a Secretary?

Mr. Welch. It is in the process.

Mr. Murtha. It should be here within the next couple of weeks?

Mr. Welch. It will be here as soon as we can break it from the building.

Mr. Murtha. What is the status of the 1989 procurement funding appropriated last year pending action on the reprogramming?

Mr. Welch. At the present time, there is some withhold. The 1989 funds in the amount of $63.9 million are, in fact, in an OSD withhold pending congressional approval, so it is tied together with the whole release of the restructure.

Mr. Murtha. Is this an area where we could find money if we have a problem down the road? What priority does this program have in your opinion,

Mr. Welch. This program has a number one priority as far as the SOF people are concerned.

Mr. Murtha. Is that priority in relation to aircraft procurement only?

Mr. Welch. The priority—I can only speak to the aircraft piece of USSOCOM, but it is No. 1.

Mr. Murtha. This is their No. 1 priority item?

Mr. Welch. Yes. With respect to the Air Force, I think if you go through the lines like the MC-130, the AC-130, and the helicopters, they have enjoyed very high priority with respect to Air Force funding in the programs.

Mr. Murtha. Have we figured out what kind of a profit they are going to have for IBM and the major subcontractors in this program? Is this going to be a reasonable profit or unreasonable? Do we know yet?

Mr. Welch. Well, we would have to judge right now, unless they are into the award fee aspects of the program. I would suggest that neither IBM nor Emerson is going to make a particularly large profit, if at all.

Mr. Murtha. They may even lose money on this program?

Mr. Welch. Yes, sir; they may.

Mr. Murtha. Mr. McDade?

C-17 AIRCRAFT

Mr. McDade. Thank you, Mr. Chairman.

Let's direct our attention to the C-17. It would appear that there is a litany of problems that have surfaced in the past couple of months on the C-17 program. Apparently the most serious are the mission computer made by Delco Electronics and the electronic flight control system made by Honeywell.

Both components are behind schedule and considerably over the budget and apparently Lockheed is behind schedule and over contract on the wing production, and LTV is behind production on the——

General Yates. Let me start, Mr. McDade, by first saying that we have had some problems on the software areas that you mentioned. We did have a problem with the computer, which is a Delco Magic 5 computer. There are no technical problems on that computer. The problem was in them getting the right amount of manpower put on the computer early enough to get the software to come out. At their first software review, they were about two months late. Right now, they have put more manpower on, not just off the street, but they got the right kind of guys from Hughes and put them on the program.

We believe that we have to watch it very closely. We have a review 10 through 14 April with both Douglas and Delco. We think it is back on track. So there weren't any technical problems there. It was just a problem of the contractor not putting the engineering manpower on in a timely fashion.

On the electron flight control system, there is concern there. We have had a restructure between Honeywell and Douglas, and, frankly, it is in terms of financial incentives and penalties for late delivery of the flight control set. We are looking for that to make a difference.

I have to tell you that I am concerned, still, that just financial incentives or disincentives are sufficient to actively change what has been happening with Honeywell. That is the way we operate with the contractor. That is the way the prime operates with his subs.

I think it is going to take more active involvement than that and the Air Force intends to see that that happens, but there still is the very real possibility that the first flight, because of that, could slip 3 or 4 months.

Now, you brought up some behind-schedule cases in the other major subcontractors to Douglas. Your information is also right in that regard. I would say that we don't have a catastrophe here by any stretch of the imagination. Those guys are also about 60 days late. It is a sort of a horse race as to what is going to delay the first flight three or four months, this flight control computer software or those other late airframe components. But neither of them should be viewed as a serious technical issue.

If you say how are we going to catch up with this, what has happened is that Douglas has acquired the Rockwell facilities in Columbus, Ohio, and they are off-loading work to that facility, so we intend by airplane No. 5 to be caught back up on this behind-schedule situation that we are in.

So while the information you read off was accurate, I think it would not be right to view it as a major problem in the long term. We do not.

So I think these are near-term things that are normal in the start up of a production of this magnitude. Being 60 to 90 days late is probably as good as we are able to control something of this magnitude and it should not affect the level of funding that we are looking for——

Mr. McDADE. The program has received good management all the way through?

General YATES. Good management, yes. Perfect management, no.

Mr. McDADE. The Douglas Company, the prime contractor, is currently $400 to $500 million above target on the development contract, with an 80/20 percent government-contractor share line.

How much, if anything, is included in that number to cover the estimated $80 million by which Delco will exceed its contract for the mission computer or the estimated $70 to $80 million by which

Honeywell will exceed its initial electronic flight control system contract?

General **Yates**. Right now, the estimate is that we are about $471 million over target and you are right in a 80/20 share that covers all of that. So with everything that we know about, every behind schedule, every overtarget with the contractor and his subs, is in the $600 million. It is all budgeted. The important part is the budgets you have before you include all that.

Mr. **McDade**. OK.

The current total program costs for the C–17 is $37 million according to budget documentation. This equates to a per unit total program cost of more than $175 million. Some independent cost analyses are even higher.

The $37 billion estimate assumes a production rate expected to be reduced by the Bush budget scrub and multi-year procurement beginning in fiscal year 1992. What is the revised total program cost with a stretched-out procurement plan and no multi-year procurement until 1994 or later?

General **Yates**. Sir, I would have to tell you that, like everything we are doing over in the Pentagon right now, a program of this magnitude is up for some adjustment, no question about that.

Whatever the Air Force is in the process of recommending has not been approved by OSD and it would be out of line for me to talk about it right now.

Mr. **Murtha**. We hear this is a prime candidate for being stretched out. That is the rumor we hear.

Whether you had normal problems or abnormal problems in the development of this program, Honeywell seems to be holding the whole thing up. I guess the mission computer and the flight controls were the hold up.

But Honeywell seemed to be more difficult to overcome. It wasn't even a case of manpower only. It was they just didn't seem to know how to solve the problem. You said it wasn't technical, but I got the impression they couldn't solve the problem.

Are we talking about a huge stretch-out here which is going to cost a lot more on this airplane?

General **Yates**. Don't think so. Our view is that the stretch could be 3 or 4 months on the first flight.

Mr. **Murtha**. That is not bad, but the Chiefs said this is a priority. The Chief of the Army said it is a priority. The Air Force said it is a priority. Two Chiefs said this is our No. 1 priority. Even the Marine Corps said it is a No. 1 priority.

You are saying this is unlikely to be stretched out, a delay of 2 or 3 months is normal on a program, but you don't anticipate this being stretched out to find money for another program?

General **Yates**. I think from the point of view of getting the first airplane up, we face something like 3 or 4 months possible delay.

Mr. **Murtha**. Three or 4 months from where—because I got the impression this was more than 3 or 4 months behind. Is that from the original schedule?

General **Yates**. No, sir. That is from the schedule that you have.

We are anticipating right now the way the program is baselined, first flight is in August of 1990. At the worst case, it might be as late as December. That is the best information we have today.

Now, the next part of your question, from my interpretation is broader than that. Given this program enjoys a very high priority in the Air Force and the other services we are supporting, would this program face any stretch-out. I think the answer is that I don't think it would face massive stretch-outs. I think the kind of things you would be looking at is some change in the build-up rate.

Mr. **Murtha**. And this is because of the technical problems you would run into?

General **Yates**. No, sir. This would strictly be fiscal constraints, nothing else.

Mr. **Murtha**. If this program is the Chief's priority and the MC-130 is a top priority, top priority doesn't mean a lot, does it?

General **Yates**. The Chief has made a recommendation to the Secretary of Defense. There hasn't been a final thing, so I think we ought to wait.

Mr. **Murtha**. We are going to be so strained. You are saying there is no technical problems that should hold this airplane up.

You are convinced that we will be all right, technically speaking. This thing should move right along? No technical problems will hold this up?

General **Yates**. Yes, sir. That is right.

C-17 WEIGHT PROBLEMS

Mr. **McDade**. We have kept this plane in development quite a long time and one of the first points I made to you is that the aircraft is still overweight, may not hit the projected weight until aircraft No. 5; is that accurate?

General **Yates**. Let me put it this way: First, 95 percent of the drawings on the airplane, Mr. McDade, are complete. The weight track—and we track the weight to airplane No. 5. Now, that is because the first four airplanes, actually, the first five airplanes, are in the test program so it is hard to track those first four airplanes because they have special instrumentation and things which are not typical of the fleet. So we track weight on airplane No. 5. With 95 percent of the drawings complete, the weight of that airplane is stable. It hasn't changed in the last 8 months. In fact, at the current weight, of about 271,000 pounds, we meet all of the contractual performance requirements, which is the important thing.

Mr. **McDade**. Will you meet the target weight?

General **Yates**. Yes.

There is not a weight guarantee, but, this is more important, there is a range payload guarantee.

We are supposed to be able to carry 167,000 pounds payload 2,400 nautical miles and that is guaranteed and, yes, we can do that at that weight.

Mr. **McDade**. You have had a hard time getting down to that number, though, haven't you?

General **Yates**. Yes, sir.

We talked about the $471 million overtarget, that is part of that engineering effort to get down to that number.

Mr. **McDade**. We have supported the C-17 in here continually and the Chairman points out that we are going to have a difficult year.

We talk about the management and you say the management is fine. We wonder what is going on when we keep seeing all of these cost overruns; the delays, you say these are not technical problems. There is not enough manpower working the software or some such thing and it makes us wonder who is in charge of the program.

When are we going to get this under control? It is a large, expensive program and it doesn't look like it is under control.

General **Yates**. I have to tell you that producing something of this magnitude, you know, is an extremely complex undertaking.

If you and I were sitting here having discourse over some major technical breakdown or major slips in this program, then we would be having a difficult kind of talk. I am telling you that we are not having major problems with this program——

Mr. **McDade**. We have heard that with other systems, that they are not major technical problems, they are quality control problems, minor, nevertheless, they begin to end up—we have heard software a lot of times and that ends up in dollars in slip costs.

General **Yates**. I don't think you are going to get burned on this program. We are confident about this and it is going very well. I think it would be wrong for you to be upset about the progress of this program.

Mr. **Welch**. We started off with the C–17 program in terms of a baseline a couple years ago trying to recognize all of the various things that you have said.

If there is a good news part of this we are, in fact, that far from first flight and that far from the first article, but we are facing up to the problems that we have.

The full electronic flight control system decision is slightly more than a year old in terms of the complexity of the system and making sure what we have learned from the wind tunnel on stability.

We have added a systems integration lab into the program well after the contract was signed based upon the kinds of things we learned in the Talon program, among other places. We have added quite a bit of simulator operation, including a moving base simulator at NASA facilities at Ames and other places. These things take time and they have added to the front end.

We are trying to get to the point when we get to a production milestone, we have made those accomplishments. We have incorporated into this contract the fact that the contractor will carry his own load on the yearly contractual activities beyond this year based upon his accomplishments in doing that. You have heard me say accomplishment-based schedules before; but in the C–17 program, it is in the contract. We are trying to capture these and incentivize them.

It is very difficult to not go through a plant that is getting ready for a first airplane and there are a lot of poles in that tent and there are long ones and you keep pushing them back in and another pops out.

In terms of visibility and trying to face up to problems, I think the C–17 is a very good one. We are talking about these problems with you some 18 months before first flight, not 18 months after first flight.

Mr. **McDade**. We have seen enough of that. This Committee, I am sure, will remain as it has in the past, supportive of the program, but we want the Air Force to give it its strongest possible management and do what you can.

Thank you, Mr. Chairman.

Mr. **Murtha**. Where are you taking this weight out of the airplane? I hope we are not doing the same thing we did in the C-5.

General **Yates**. No, sir. We are not going to strip the wing strength down. We changed the maximum vertical velocity at touchdown from 16 feet per second to 15 feet per second; a small amount, which enabled us to take quite a bit of weight out of the airplane.

So we are being prudent about it.

Mr. **Murtha**. So by trying to meet the original specifications, you are not going to, on one flight, you are not going to reduce the life of the plane?

General **Yates**. No, sir. The life of the airplane has not been reduced.

Mr. **Murtha**. Five or 10 years from now when this plane is flying, we won't have to go back and fix anything because of what you had to take out?

General **Yates**. No, sir.

Mr. **Murtha**. Mr. Hefner?

C-17 COSTS

Mr. **Hefner**. Thank you, Mr. Chairman. I am sorry I am late.

What was the original cost per copy for this plane?

General **Yates**. Sir, I guess I don't know. Last year when we were over here testifying, the per-copy cost was about $118 million. This year it is about $125 million, so it has gone up about $7 million.

Mr. **Hefner**. What do you project is the cost per copy now when you fly the plane?

General **Yates**. The number I just gave you is the projected unit fly-away cost for buying the whole 210 airplanes.

Mr. **Hefner**. That is $125 million?

General **Yates**. Yes, sir.

Mr. **Hefner**. So you are talking about in excess of $75 million to $100 million from what the original projected costs were for the whole fleet?

General **Yates**. Yes, sir. That is what it is on a unit fly-away basis. I would have to provide for the record that information, if you go back from last year. That is all I have, sir. Last year when we were over here, we told you that the total program costs were going to be $35.4 billion and we are telling you this year that the total program costs are going to be $37.1 billion.

Mr. **Hefner**. Give me those numbers again.

General **Yates**. Last year we told you $35.4 billion. This year we are saying $37.1 billion.

Now, you know, a moment ago, you and I were talking unit flyaway costs. As we were just talking earlier about increases in research and development, which are not unit flyaway, that has increased about $413 million since last year.

We have gone up in military construction $200 million this last year. And then there was about a $1 billion which was added to the program basically for risk money so that we wouldn't be coming back and missing our estimate.

[The information follows:]

Since the first C-17 Selected Acquisition Report (SAR) was submitted, the C-17 program had a total change in acquisition costs of −$2.3 billion. The cost changes through the December 1987 SAR (−$4.1 billion) are documented in previous SARs. The change from the December 1987 SAR to the December 1988 SAR reflects an increase of $1.8 billion.

Mr. HEFNER. What you are looking at is $1.7 billion overrun or beyond what the original cost was; is that right?

General YATES. Yes, sir.

Mr. HEFNER. That is about a five percent increase in one year.

General YATES. Yes, sir; that is right. But I would like to add——

Mr. HEFNER. Let me finish.

If we do that, you don't project it is going to increase another 5 percent next year?

General YATES. No, sir. Let me tell you why. Of that 5 percent you talked about, three percent is, in fact, risk money to preclude that from happening again next year or the year after.

Mr. HEFNER. Well, I am like Mr. McDade. We have been strong supporters of the C-17 and Members of this Committee fought back attackers on the C-17 when people wanted to scrap the C-17 and go the C-5 and other areas.

I would urge you to hunker down and do whatever we have to do because if we come in—I don't understand insurance money or whatever you call it——

General YATES. Risk.

Mr. HEFNER. Risk money, if that wasn't figured into the original cost, if we have to come in with another 5 percent every year, we are going to be in deep trouble by the time we get to the end of this thing.

General YATES. We would be and we clearly don't plan on that. Where we are is this. The story on the risk money is I think straightforward. Because there were a lot of things that were done on this airplane to reduce the risk in the program, and we were using, for instance, engines that will have millions of flight hours on them, the Air Force planned this program with 2 percent of management reserve. In other words, having in our bank account 2 percent for things that we don't anticipate upfront, like I was discussing earlier with Mr. McDade. OSD looked at that, did some recalculation, and basically said we think you guys are cutting it too close.

Mr. HEFNER. You said something. I don't know if you were just throwing out a number, using engines with a million hours on them.

General YATES. The type of engines we are using have been flying in commercial airliners and they have a million flight hours. The point is that that should be a very stable configuration. So, in other words, we said it shouldn't be very risky to build this airplane. So we didn't plan to have a whole lot of management reserve, spare in the bank to take care of unforeseen problems. So OSD has said we think you need more and of the 5 percent you are talking about, 3 percent of that is money that has been put in so we would not do as you are suggesting, come back over here next year with another cost increase.

Mr. HEFNER. Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Sabo?

C-17 DEVELOPMENT CONTRACT STATUS

Mr. SABO. Thank you, Mr. Chairman.

What is the development contract that is $400 to $500 million over original at this point? We can project future costs of the plane, but development cost is a given and that is over by——

General YATES. The development contract is $4.8 billion.

Mr. SABO. So the development contracts will run 10 percent or so more than was estimated?

General YATES. At target. That is pretty close.

Mr. SABO. What new technology was involved in the plane? The engines are old——

General YATES. New technology. I would have to say that there is no new technology involved in the airplane. The overrun really comes from basically three areas: Number 1, the weight control that we were discussing earlier with Mr. McDade, the fact that the airplane was overweight and we had to go back and do some reengineering to get the weight out. The software problems that we were discussing we had on that Magic 5 computer and that electronic flight control system and the fact that we had to offload some work to subcontractors. Until we got that work offloaded and got those guys on contract, we burned up a lot of overtime trying to keep on schedule. So that is what drove up that overtarget.

Mr. SABO. And we pay 80 percent of those subcontracting problems?

General YATES. Yes, sir. We pay to the prime. We pick up 80 percent.

Mr. WELCH. We may have a little bit of a difference here in that you set a target cost that has risk in it and then you try to incentivize on the sharing of that. That target cost is a best judgment value that they have. It is far from a no-risk value of cost. That is one of the reasons that we budget at ceiling, to be able to take care of that share. So it is an attempt to provide an incentive to make beyond target profit on the part of the contractors, but it is not really per se——

General YATES. We budget not to ceiling, but the most probable costs.

Mr. WELCH. The budgets we have here.

General YATES. We are still budgeted at most probable cost, but if you set the proper target, there should be risk for both parties to the contract. That is not unreasonable.

AIR FORCE AIRCRAFT PRIORITIES

Mr. SABO. Looking at your whole budget, I suspect when we are through this whole process, we are looking at a more restrictive budget than you are currently planning.

If our decision within this account was to buy those things that are in place and we know work what would be our priority within your accounts?

General **Yates**. You mean not just on the C–17?

Mr. **Sabo**. Not just on the C–17.

General **Yates**. All weapon systems?

Mr. **Sabo**. Yes, within the procurement we are looking at today. We simply say our priority goes to those things we know are in place, will work, and will be at about what we thought they are.

General **Yates**. In a general sense, I don't think that we could make a judgment like that because we can't mortgage our future.

Mr. **Sabo**. I am not asking a relative judgment. I am just saying what are the items in your budget that are in place, are working, and if we look back a year from now, are likely to have been bought at the price we expected?

General **Yates**. I would have to tell you that there is not a listing from alpha to omega which establishes our priorities.

Mr. **Sabo**. I am not asking for what your priorities are.

General **Yates**. The Air Force priorities.

Mr. **Sabo**. Or the Air Force's priorities. I am asking what are those things—I think your budget before us is $18 billion in total, some procurement, some spare parts, some modification.

If we, or I, or someone, were to set the priority that what we fund are those things that are working——

General **Yates**. I would have to start with general overall priorities and our first priority you know is strategic modernization.

Mr. **Sabo**. I am not asking your priorities. I am asking, of those sytems that are in place, if we look back a year from now, what will be purchased at the projected price?

General **Yates**. Well, you would have to buy, if you did that, you would have to buy those things which are currently in production and those things which are near enough to the completion of production where you can anticipate them flying within the next year.

This would be one, for instance.

Mr. **Sabo**. This one, I understand, is several months delayed from what you told us.

This is R&D money here.

General **Yates**. It still plans to fly next December.

Mr. **Sabo**. Four or 5 months later?

General **Yates**. Yes, sir.

Mr. **Sabo**. We are having troubles with the engines in the F–16?

General **Yates**. Yes, sir, we are but—you know, I don't think that——

Mr. **Sabo**. My question really is, what are the things we should do so that a year from now, when we are sitting here, we can go to our colleagues and tell them we funded this at X amount and we actually bought them for that amount.

Mr. **Welch**. Let me give you an analogy of something that is designed to be 100 percent risk free, the latest version of the 747.

It is significantly later than this program from things they have run into. The commercial world does not take risk in that. I know of no system that can give you risk-free technology products.

Mr. **Sabo**. I assume that is impossible to have a total guarantee, but generally, what could we do that likely a year from now, not assuming perfection——

General **Yates**. Many of the things that we are talking about here today, the types of things which people have asked about—we have ECM pods which are currently in production, F-15Es are in production.

F-16s—you mentioned engines. Engines are great success stories, but we have had eight engine problems with the new engine that we put in the F-16s. None of them have been related one to the other. We are very unhappy with that. Mr. Welch just made a source selection and the prime factor in his giving most of the business to Pratt & Whitney was that we were unhappy with that. But engines are a great success story.

Lantirn pods are something that are very stable.

I mentioned this program. We had a lengthy discourse with you in our prior appearance here on the B-1 radar warning receiver. It is an off-the-shelf piece of equipment which is being bought for other airplanes. I think that is a place to put money. Clearly, we feel like there is no technical risk to Peacekeeper rail garrison. I am certain I have left out something of vital importance. I just happen to have this list in front of me and looking at my index here.

Re-engined tankers. Those things, I believe, are all very stable. I would have to say that, to give you a complete list beyond that, I would have to provide it for the record because I hadn't thought it out to that extent. I would be happy to.

Mr. **Sabo**. I wish you would.

[Clerk's note—The Department was unable to provide a response in time to be printed in this hearing volume.]

Mr. **Sabo**. I am not sure how we sort out those priorities, but I am sure that in the end, our money restrictions are going to be severe, are going to be tighter. I think one of the judgments we have to make is to what degree we are increasing funding for things which are in developmental stages versus those things that are ongoing, that we have reasonable assurance that work, and that are likely to be success stories.

I think part of your problem today is frankly story after story about systems that don't work and that are overcost. That is a significant problem for credibility.

I think that has to be part of our thought process as we make judgments.

General **Yates**. Sir, I know that you know we are concerned not only with our credibility, but with getting it right. I would like to point out, we started this conversation talking about C-17s and I really hope that the Committee leaves here not putting the C-17 in the category of something that is broke.

The chairman talked to us about MC-130H's. There is something that we did foul up and it was broke, but C-17s are frankly, sir, just not in that category.

Mr. **Sabo**. OK.

ADEQUACY OF SPARE PARTS LEVELS

Mr. MURTHA. One of the projects that this Committee has strongly supported is spare parts.

We knew we had all kinds of combat aircraft deadlined. I think it was about 57 percent of the combat aircraft that were on line or 43 percent were deadlined because of lack of spare parts.

I was just at Langley Air Force Base. They are telling me they have 85 percent now of their airplanes on line. Although they are starting to see a spare parts problem, they are up to speed right now, but they are starting to cannibalize more again.

It is hard for me to believe with as much money as we put in the budget. Then I read a former Army Deputy Chief of Staff for Logistics, and I don't know when a retired person is telling us things whether it is accurate or not, but Joseph M. Heiser says based on his experience between one-third and one-half of spare parts on requisition should never have been funded.

I realize it is extremely important to put spare parts in the system, but when spare parts have gone from $43 billion to $93 billion in eight or nine years, would you agree with that statement that we were that far out of line with spare parts? Have we ordered way too many spare parts? Have we a lot of spare parts we don't use and they are just sitting there?

Mr. WELCH. I just heard about the article this morning. I think what you saw at Langley is something to be pleased with.

By getting the proper balance between the procurement accounts and the readiness and substantially part of the thing, we have seen that increase that has been great. Now, as the budgets have come down, and they have come down in real levels over the past 3 years, there is no way to maintain that.

In the first place, we see the exact contribution I think this Committee wanted when they invested in the spare parts.

Second, we are also beginning to see when you have to curtail and buy on a percent basis of what you would like in those accounts, that it also gets reflected. But I would have to go back and specifically look at some of those.

Mr. MURTHA. For instance, one thing that is wrong in this article, at least according to what I have heard from General Russ, relates to the war reserve spare kits. General Heiser says the planners of Coronet Warrior discovered the WRSK kits could be made leaner.

They are already using war reserve spare parts for operational peacetime use, according to TAC officials. In other words, they are starting to use war reserve parts right now. So this is absolutely inaccurate, according to the F-15 commander out in the field.

Is that the way you see it, the war reserves are starting to be used now?

Mr. WELCH. No, sir. They are there—we are not putting funding into the war reserves.

Mr. MURTHA. He says you don't have war reserves out there. Somebody doesn't know that they are talking about. The man who wrote the article says we have got too many spare parts. General Russ says we are already into the spare parts of the war reserves.

Somebody is wrong. This guy is saying the opposite of what General Russ is telling us.

Mr. WELCH. We talked to General Russ who says that they are being forced into their WRSK kits which we don't like to do.

Mr. MURTHA. This guy is saying the opposite of what General Russ is saying. Who is right?

Mr. WELCH. General Russ is right. He is there today.

Mr. MURTHA. I would think he knows whether he is using war reserve spares.

Let's go a step further. Do you have certain categories which are over ordered and to what magnitude? I am sure you order some spares and you say, "Well, we made a mistake. We thought they would wear out faster and they didn't."

Others you say the opposite; they are wearing out much faster than you anticipated. What is the magnitude of that kind of a misculculation?

Mr. WELCH. The last time that we checked the model in these areas, and keep in mind there is a 5-year lead time before you see this, the models appear to be fairly accurate.

When we bought the extra spares that we put into the field for operating, we saw them used and we saw what you have already reflected, an unprecedented high operationally ready rate, particularly measurable on the F-16.

Mr. MURTHA. There is no question that right now we are in better shape than we have ever been as far as readiness in the Air Force goes, the airplanes are flying. This is confusing though.

General Russ says he has to take war reserve spare parts, and has to cannibalize parts right now in order to keep airplanes at the 1985 percent level; in other words, he says they are going to start going down. I am coming right out of the field. This was last Friday. So I am sure I have the latest information. There is no question in my mind he is accurate about that.

General Heiser is making the claim that between one-third and one-half of the funds for repair parts on requisition should never have been funded, and GAO seems to back him up.

You know, that doesn't make sense to me. They are running out of spare parts down there and yet this guy is saying we have too many. How do you reconcile those two statements?

Mr. WELCH. I can't.

Mr. MURTHA. Is there a number for the magnitude of spare parts that you order and don't use? Is it as high as a third?

General YATES. Oh, no. As Mr. Welch said, this whole thing, there is a lot of things you can talk about modeling and you kind of snicker at, but this is one case where you have to live by the model. We continuously revalidate the model. The latest thing on there gives us a 98 percent accurate rating on the model.

In the last couple of years, we have taken fighter squadrons out and lived off the WRSK kit, off the war reserve spares to find out if, in fact, there are extras in there or if there are shortages. They are also optimized—sometimes the design of the airplane changes and you make some things more reliable. You find, OK, we can take this out of the WRSK. Not big numbers.

The guy who wrote that was in the Army, I think. That is not reflective of the Air Force. We don't have that situation.

Mr. **Welch.** I believe what General Russ was saying is that over the last 2 years and possibly 3, we have not been able to maintain our spares levels at levels that reflected themselves in those very high operating rates because we have been trying to balance between sustainability and modernization.

General Russ is saying he is already seeing the impact of not having funded that and he is reaching into his WRSK, but not that the WRSK is wrong or that the spares allocation is wrong.

General **Yates.** It is different from the article. That article would tell you if, in fact, the budget levels were going down, we would have a big pool of parts in a garage——

Mr. **Murtha.** He is saying that there are those types of pools—you are assuring me that in aircraft spare parts, you don't have this magnitude; that the magnitude would be less than what, a magnitude of excess spares and miscalculated spares?

General **Yates.** I would have to provide that for the record, but it is small.

[The information follows:]

The problems currently being experienced by the field commands regarding asset availability are not totally the result of the lack of spares funding or not buying the right items, but are the effects of shortfalls in the Depot Maintenance and Second Destination Transportation (SDT) accounts. The Depot Maintenance account funds the repair of aircraft spare parts and the SDT account funds the transporting of assets to and from the operating units. The use of war reserve assets to support peace time operations, higher cannibalization rates and the overall decreased availability of assets were expected in fiscal year 1988 as the initial impacts of Depot Maintenance and SDT shortfalls were felt. We expect these impacts to begin a bowwave in fiscal year 1989 as we experience the full brunt of not only Depot Maintenance and SDT shortfalls, but the aircraft spares shortfalls as well.

The Air Force substantially improved its spares support posture as a result of strong funding from fiscal years 1981-1987. The investment made in peacetime operating spares brought our readiness indicators to an all time high. We were able to support the increased flying hours over the years which means more hours have been allocated to train aircrews, increase proficiency and combat readiness. These quantitative improvements are all the more impressive since they occurred concurrent with qualitative improvements in the force structure (i.e., F-15s, F-16s). Additionally, we invested over $5 billion in wartime sustainability spares. Of this amount, approximately $4 billion was invested in the war reserve spares needed for the first 30 days of wartime operations, and approximately $1 billion for the spares needed after day 30. This level of funding has increased the Tactical Forces capability to achieve the sortie requirement for the first 30 days of the war from 55 percent in fiscal year 1981 to 99 percent in fiscal year 1989. Considering a two to three year procurement leadtime for asset delivery, fiscal year 1989 capability is based on funding in fiscal year 1987. The 99 percent capability, however, is based solely on the procurement of spare parts needed to support the wartime requirement and does not consider the confluence of impacts that result from shortfalls in our other key logistics accounts.

Unfortunately, these gains in both readiness and sustainability are being mitigated by the current austere funding environment. Severe fiscal year 1988 Congressional reductions, which included in fiscal year 1987 rescission, coupled with fiscal constraints in fiscal year 1989 have resulted in shorfalls for our peacetime operating stocks for three consecutive years. These same reductions also severely reduced fiscal year 1988 funding for war reserve spares and virtually deleted all fiscal year 1989 funding. While depot repair of assets is impacted in the same year as the funding shortfall, impacts resulting from shortfalls in procurement of assets is not realized until the year in which the asset should have been delivered. Therefore, impacts from spares funding shortfalls will be realized in the fiscal years 1990-1991 timeframe. Support of the flying hour program will require workarounds by the field activities which will include the continued use of war reserve assets and increased cannibalizations.

The fiscal years 1990-1991 President's Budget funding request for spares provides for a slow but steady move toward recovery from the severe funding shortfalls in fiscal years 1988–1989. The fiscal year 1990–1991 peacetime operating stocks are funded at 100 percent; this will put support of the fiscal years 1992–1993 flying hour program back on track. The funding levels for the 30-day war reserve requirement will provide for the procurement of 27 percent of the new kits required to support force structure deliveries between fiscal year 1990 and fiscal year 1993. No funding is available to insure that kits currently fielded have the items resulting from modifications.

In view of the current and expected continued austere funding environment, the Air Force has been looking at ways to improve the requirements process. One area of particular emphasis has been the computing of war reserve requirements. The operational commands have been running various combat exercises to test the adequacy of the kits. As was expected, some adjustments were required. We found that we had too many of some assets and not enough of others, and the turn-around and maintenance rates were better than had been predicted. When all was balanced out, we can do with a little less than what was in the kits. All of the exercise data was captured and rolled in to the new modeling technique which provides the best mix of assets to assure more aircraft availability. The fiscal years 1990–1991 budget submission requirements for F–15, F–16, and F–111 reflect the results of these tests and the new computational methodology.

In summary, the strong funding in previous years has provided the assets needed to support both the flying hour program and the 30-day wartime requirements, however, the depot maintenance and SDT shortfalls are precluding the repair and shipment of these assets. This has resulted in field activities being forced to remove assets from their war reserve kits on a continuing basis in order to support the current flying hour program. Improvement of this situation is not expected in the near-term in light of the continued shortfalls to critical logistics accounts. Finally, although the Air Force has developed a modeling technique that can provide us with the best mix of assets needed to support our wartime commitment, continued shortfalls or any further funding reductions can only jeopardize the support of new force structure deliveries and maintaining the integrity of the kits currently in the field.

Mr. **Murtha**. Mr. McDade?

B–1 COST CAP

Mr. **McDade**. Thank you, Mr. Chairman

Let's chat for a second about the B–1 cost cap.

For several years, the Congress has included a provision in law limiting obligations of the B–1B program to the presidentially certified cap of $20.5 billion, expressed in fiscal year 1981 constant dollars.

Where does the Air Force currently stand in relation to the cost cap?

Mr. **Welch**. I think that from a base line standpoint, we believe that $20.88 billion will be the number that we will see in base-line dollars, including the addition of a radar warning receiver which we discussed at some length the other day.

Mr. **McDade**. Where does the cost cap equate to in then-year dollars and what has been obligated to date in then-year dollars?

General **Yates**. The $20.88 billion base year number equates to $28.248 billion in then-year dollars.

Mr. **McDade**. Would you say that again.

General **Yates**. $28.248 billion.

Mr. **McDade**. What will total obligations be both in constant and then-year dollars, if the Air Force completes the "core" effort?

General **Yates**. With the core program, in base-year dollars, it is $20.44 billion; and in then-year dollars, $27.5 billion.

Mr. **McDade**. What will total obligations be in constant and then-year if the Air Force completes its planned buy of radar warning receivers?

General **Yates**. Sir, unless I am misunderstanding your question, those would be with the radar warning receivers and some depot support equipment that we have to buy, the numbers that I gave you prior on $20.88 billion, that would be the answer to that.

That includes both the RWR and the depot support equipment. I have that broken out, if you want that.

Mr. **McDade**. Put it in the record.

[The information follows:]

B-1B then year cost will be $489 million for the Radar Warning Receiver (RWR) and $250 million for depot support equipment. Constant year cost (fiscal year 1981) will be $295 million for the RWR and $145 million for the depot support equipment.

Mr. **McDade**. What is the schedule by fiscal year in both units and dollars of the radar warning receiver procurement?

General **Yates**. In radar warning receiver, in procurement dollars. In 1992, it is $11 million, and in 1993, it is $133 million. For 1994, it is $126 million.

Units—in 1992, it is 7 units; 1993, 63 units; 1994 is 55 units.

Mr. **McDade**. Some people are saying that there is a question about using the new advanced radar warning receiver ALR-56M, of which there has not been one production unit instead of the more powerful ALR-56C, which will continue to remain on the F-15s.

Why aren't we buying the more powerful ALR-56Cs?

General **Yates**. I think more powerful is not an accurate term. The radar warning receiver, the sensitivity is the same on the two warning receivers. In other words, it is a passive device, so it doesn't put out power.

The sensitivity is the same, but the more expensive ALR-56C is integrated with the jamming system on the F-15. We don't need that in either the F-16 or the B-1. In other words, all that you need is that same receiver sensitivity.

Mr. **McDade**. The tie-in to the jammer?

General **Yates**. That is what we are taking out.

Mr. **McDade**. Are you concerned that there hasn't been a production of that new radar unit yet?

General **Yates**. No, sir.

First, there is about an 80 percent parts commonality between the ALF-56M and the ALR-56C. We have gone through extensive flight tests on the M and, of course as you know, the C is out flying now. So I am not concerned with that.

Mr. **McDade**. It is not a completely off-the-shelf item?

General **Yates**. No, sir; it is not. It was basically a repackaging. I don't want to demean that. In the F-15, as I recall, that unit is in three boxes and in the ALR-56C, I think, is three LRUs and when you go to the ALR-56M, I think it is eight, but fundamentally, it was a repackage.

Mr. **McDade**. Do you have any concern about it, Mr. Secretary?

Mr. **Welch**. No, sir. By the time it gets to the B-1, it will be a nondevelopmental item because the F-16 program precedes the B-1 program.

Mr. **McDade**. It will be inserted into the F-16 first?

Mr. **Welch**. It was bought for the F-16.

Mr. **McDade**. You hope to transfer it——

Mr. **Welch**. The risk reduction program that we have going this year will effectively use it as is. It is identical.

TANKER TRANSPORT TRAINING SYSTEM

Mr. **McDade**. Let's talk about the tanker transport training system.

In April 1988, the Air Force published a trainer master plan which supports a dual track training approach: one track for bomber and fighter students and one track for tanker transport students. The TTTS is a program to procure 211 aircraft and related course instruction at a cost of approximately $1.5 billion.

The fiscal year 1989 budget included initial procurement funds of $9.6 million for an off-the-shelf aircraft to become the tanker transport trainer. The Appropriations conferees provided the funds, but fenced them until the General Accounting Office had made an independent assessment of the validity of the Air Force Master Plan.

Please respond to the following observations made by the GAO:

> The cost analysis in the master plan contains a degree of uncertainty and is meant to provide order of magnitude cost estimates. Thus, because of the closeness of the costs of the dual-track and single-track alternatives, neither is a clear choice over the other from a cost basis.

Have you seen that, Mr. Secretary?

Mr. **Welch**. I have. I would say two things.

One, in the GAO report, we responded on the 9th of March to them in a detailed letter with respect to all of our comments, and I believe that with the cost comment, GAO agreed with the variability in T-37 costs and, since they applied to various options, they have dropped that point.

Mr. **McDade**. They are not contesting that one anymore?

Mr. **Welch**. No, sir.

Mr. **McDade**. Then let's move to the next one. This is the quote:

> Replacing the two aircraft as early as planned does not fully utilize the Air Force's existing fleet. It also increases near-term budgetary requirements at a time when the Congress and Administration are faced with the need to address the federal deficit. Delaying the acquisition of new aircraft for 5 years could reduce budget requirements during this period by about $954 million.

General **Yates**. Mr. McDade, we don't agree with that. We don't agree that that would be a good plan, and the reason is as of fiscal year 1993, we will already not be able to meet with our current fleet the required pilot production.

Now, you know as well as I do what is going on in the aviation industry. You can reach your own judgment about whether our requirements to produce pilots are going to go up or down.

Mine would be it will probably go up. Nevertheless, as of 1993, we can't meet that as the situation stands. The only way for us to meet it is to procure the TTTS now. So we don't think we are procuring it too early at all.

T-37 AND T-38 AIRCRAFT

Mr. **McDade**. A lot of the people argue that the real issue is that (a) the Air Force wants to get under way as soon as possible with the dual-track training system, and (b) the Air Force is afraid the funding requirements for training aircraft will be too high if TTTS and the T-37 replacement aircraft procurement overlap. Isn't this what is really driving the program rather than a requirements-based situation reflecting current T-37 and T-38 usage and anticipated service lives?

General **Yates**. Both of those statements are true. We not only want to get under way with the dual-track training system, we think it is imperative.

The other statement is when I read the GAO report, I have to tell you I was kind of thinking about this on a personal basis. If you have got children, you have probably got several cars and I don't think any of us plan our lives to where, in one year, we are going to have to replace all the automobiles that we own. GAO's suggestion that we don't think this problem out, that we drive up on this cliff and in one year we have to replace all the airplanes.

We agree that that would be an unreasonable funding burden for the Air Force. So our intention, sir, is to buy the TTTS now. This enables the T-38 airplanes to last us to the year 2015 and the airplane that we need to replace in the latter part of the 1990s is the T-37. That enables us to keep a relatively level funding requirement for trainer replacements.

Mr. **McDade**. Thank you, Mr. Chairman.

Mr. **Welch**. I might comment on that. There is a new trainer master plan that was delivered, an upgrade recognizing all of the prior comments, on about the middle of February. We believe as a result of that report, the balancing of the budget, various agreements that we have signed between the services, that we should be in compliance with everybody's questions and hopefully satisfied at this point so we can proceed with what we need to do.

Mr. **McDade**. Sounds good. Thank you, Mr. Secretary.

Thank you, Mr. Chairman.

SPARE PARTS

Mr. **Murtha**. Let me get back on the spares issue for just a minute. We have got three different stories in these spares and I want to make sure we are absolutely talking the same language here.

General Russ feels he has a problem in his exercise, he is using more of the war reserves than he should, he doesn't have enough war reserves. General Heiser claims that in the exercises they have got excess spares, and he mentions F-15s and F-16s in the system.

You are saying that you are buying the right amount. Would you know in your job whether you have got the right amount of spares or whether it is a long-term spares availability issue? If we punch money into it, we are looking for money this year. We don't want to overfund or underfund the spares. We think it is critical to readiness. Where are we? This is a critical question.

General **Yates**. On this issue, we start out discussing that article and whether I thought that was typical Air Force. On specific answers, I am not the right guy from the Air Force to give you those answers. We will get you those answers. I am not the right person to answer your question.

[The information follows:]

The current value of Air Force aircraft replenishment spares which are considered potential excess assets is $432 million. This is only 1.5 percent of the total spares inventory of $28.8 billion.

Most of the assets that fall in this excess category were procured several years ago in support of weapon systems or end items which are currently being phased out or modified out of the system. When a weapon system is phasing out, the requirements computational system indicates that fewer and fewer spares are needed to support the declining flying hour program and aircraft population. However, the assets which are procured in past years to support the weapon systems for the many years of its peak operation will remain in the inventory as long as any portion of the weapon system is still considered active. Additionally, if retired Air Force aircraft are subsequently sold to our foreign allies, the associated spares are offered for sale to the country. During the period of time that these assets are retained for potential sale, they will appear on Air Force records as excess.

The other primary portion of excess is assets which are being replaced through modification. The Air Force invests billions of dollars annually to enhance operational capability and improve reliability and maintainability of existing systems. These modification efforts are key to increased combat capability, readiness and sustainability. As these assets are replaced, they are retained in the inventory as available stock to support unmodified systems until the modification process is complete.

In order to respond to the question regarding miscalculated spares, an explanation of the requirements computational systems for spare parts is necessary.

The spares computation develops peacetime operating requirements by using two years of past flying hour programs and the associated usage data (failure rates, repair rates, pipeline times) and extrapolating and resulting factors to the future flying hour program. The war reserve spares which support the first 30 days of war are computed using projected wartime usage and repair information and the wartime flying hour program. Once these requirements are computed, the system determines how many assets are available to satisfy these requirements. The computation considers all assets whether they are serviceable, unserviceable, or on order prior to determining if additional assets need to be procured. The computation assumes that all unserviceable assets (except those which are condemned) can and will be repaired and does not consider or recognize less than full funding of the Depot Maintenance account. While the requirements determination process is straightforward, requirements do not remain static. Requirements are constantly affected by demand data changes, programmatic changes such as flying hour programs and squadron activation/deactivations, and changes in policy.

Between the time a buy requirement is generated and when the items are delivered (approximately two to three years), a number of changes can affect the actual number of spares needed. Conceivably, we may not have procured enough spares or we may have procured too many. This is not a matter of miscalculated spares, but more the inherent dynamics of change through time.

The system, as currently designed, issues a notice for consideration of contract termination if the assets on order will not be immediately needed upon delivery. For example, the March 1988 computation considers any spare on order over and above the requirement in fiscal year 1990 eligible for termination. It does not consider that while the asset may not be needed in fiscal year 1990, it would be required to be reprocured in fiscal year 1991.

Currently, the Air Force has $656 million of on order assets which are considered eligible for possible termination action. Of this amount, $117 million has been terminated, and the remaining $539 million (9 percent of the total $6 billion on order) will not be terminated. Termination actions are not taken for reasons such as a termination cost analysis indicates that it would be uneconomical or if the quantity on order was procured as the result of a contractor's minimum buy requirement or where a significant price discount can be realized by procuring a slightly higher quantity.

Also included in this category are the B-1 spare parts procured under the Expanded Advance Buy concept. The concept was utilized at Congressional recommendation and provided for the procurement of four years worth of assets instead of the usual two years. This was done in order to take advantage of economical production quantities. The system and its restrictive timeframes, however, consider the additional two years worth of assets eligible for termination.

While the General Accounting Office (GAO) advocates terminations based solely on economical analysis, the Air Force considers supply support issues such as potential reprocurement in the near term and/or projected usage increases. A study conducted by the Department of Defense Logistics System Analysis Office concluded that contract termination should not be used to fine tune the requirements process by cancelling orders for near term requirements that are beyond the immediate objective.

As a final note, the Air Force has decremented the aircraft spares funding request in the last two budget submissions in recognition of the fact-of-life changes associated with spare parts requirements.

Mr. **Murtha**. Mr. Hefner.

F-15 MULTI-STAGE IMPROVEMENT PROGRAM

Mr. **Hefner**. Thank you, Mr. Chairman.

Last year the Congress proposed $15 million to modify old F-15A and F-15B aircraft to multi-stage improvement program configurations. What is the status of these programs and have the funds been released to the Air Force?

General **Yates**. Sir, the dollars that you are referring to were for F-15 Air National Guard airplanes. I will have to get for the record the answer specifically to your question. I tried to get that before I came and I was not able to. I am sorry.

[The information follows:]

The program is on track. Funds have been released and are awaiting contract award.

Mr. **Hefner**. Do you know how many aircraft could be modified for $15 million?

General **Yates**. It is about 15. The modification is about $1 million per airplane.

Mr. **Hefner**. Do we have any idea what the total number of the Air Guard F-15s that are needing this modification?

General **Yates**. There are 118.

Mr. **Hefner**. So to do them all would cost $118 million?

General **Yates**. Yes, sir. And the Air Force does have those, the modification kits for those 118 airplanes funded in the FYDP that we have provided to the Congress.

The mods to the As and Bs come after the mods to the F-15Cs and Ds, because that is a tactical air command priority. We mod the rest of these airplanes starting in fiscal year 1993.

I don't have the answer about what the current status of the $15 million is. I am sorry.

JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM

Mr. **Hefner**. Could you just give us a little overview on the JTIDS system? What are we doing there and——

General **Yates**. Yes, sir. What we are doing is the Air Force has asked to buy 29 units. Twenty of those are for installs in the F-15s at Soesterberg in the Netherlands for follow-on test and evaluation. Five of them are for spares and nine of them will go into test.

Mr. **Hefner**. You have a 1990 procurement of $44.4 million to produce 20 terminals?

General **Yates**. The $44.4 million is RDT&E. The $40 million is for terminals, that is correct.

Mr. **Hefner**. But where does the 29 units come in?

General **Yates**. The 29 comes in because there were eight bought in 1989 and one in 1988.

Mr. **Hefner**. OK. When do you expect the decision on the JTIDS and how much schedule slippage is this going to represent since last year?

General **Yates**. We have an LRIP decision on the program in August—low-rate initial production decision—on the program in August of 1989. The Air Force plan is that we are not ready to go beyond LRIP in JTIDS until we see how the production verification units, these 20 units that you and I were just talking about, perform in the airplanes themselves. So we will be hanging in with the lower rate.

Mr. **Hefner**. Thank you, Mr. Chairman.

C-27A STOL AIRCRAFT

Mr. **Murtha**. Let's go to the C-27 STOL. Two years ago the administration requested funds to purchase the first five of a total planned buy of ten short take-off and landing aircraft for SOUTHCOM. Due to concerns with inadequately defined requirements, the funds were not authorized or appropriated.

The 1990 budget includes $74.4 million plus $10.1 million in spares for such an aircraft. It is noted that the take-off distance requirement for the aircraft has been relaxed by 20 percent, from 1,500 to 1,800 feet. What other requirements changes have occurred in the past two years?

Mr. **Welch**. Sir, I can't give you all of the specifics in terms of what has been done, but in terms of working with the SOUTHCOM commander and the people he is going to service, the agreements are made to go look at basically an off-the-shelf aircraft.

Mr. **Murtha**. Do you have aircraft like this that are flying? Are we talking about a paper aircraft or are we talking about an aircraft that you can buy some place off the shelf?

Mr. **Welch**. We are talking about an aircraft that you will be able to buy.

If you recall, another part of that discussion was the desire to buy an aircraft that was in fact being purchased in the United States. On our present schedule right now, there are three U.S. corporations that have said they wish to enter this competition. They will have flying aircraft by the end of this calendar year, which would be about the latest time period that they can fly and still support our schedule, which calls for us to be putting an RFP out on the street about the first of calendar year 1990.

I would say that there are also international entries into this program who have aircraft either in specific configuration that people are looking at or who are willing to make changes.

Mr. **Murtha**. Where does this airplane fit into the priorities system here?

Mr. **Welch**. That is a very difficult one to answer. It really is a specific airplane to support a specific CINC, so obviously it would be his No. 1 priority on his priority list.

The Air Force supported it at one time. It was taken out of the budget. It was frankly put back into the budget by OSD at the end of the year. We frankly are fully prepared to execute this program and to spend this money. I doubt that you could put it in an overall context because it supports one CINC.

Mr. **Murtha**. So what happens when the Panama Canal is turned over—he wants a base in Panama, is that accurate?

Mr. **Welch**. Howard Air Force Base, yes.

Mr. **Murtha**. What happens when the Panama Canal goes? Are they worn out by that time?

Mr. **Welch**. No, and they are capable aircraft. If you look at the job that he has to do, it is just not transport; he wants to do some search and rescue and other things with these aircraft down there and he wants to operate in this mode in unprepared strips. So I think wherever that requirement exists, the life of the aircraft will remain.

Mr. **Murtha**. So this is his priority for Panama, and you will buy the airplane off the shelf even though it is not available right now, but it will be by the end of the year?

Mr. **Welch**. It is not available from a United States manufacturer right now. It should be flying at the end of the year. I have to say I believe that schedule to be high risk. If we do not have those aircraft flying by the end of the year, the ability to run a competition, make a selection and get that money obligated by the end of the year, I think we have to leave it with a question.

Mr. **Murtha**. Is an airplane with these specifics flying anyplace in the world right now?

Mr. **Welch**. Not by an American manufacturer. CASA Aeritalia——

Mr. **Murtha**. It seems to me if you had an airplane and he needs it, it would be preferable to buy the thing early rather than compete it; it would be 2 or 3 years before you got this thing in the air, wouldn't it? Are there any of these overseas that are available?

Mr. **Welch**. They tend to be in a higher dollar category but there are some that can fit in. I believe it was at the direction of congressional language that we looked to a United States source on this and there are three U.S. sources that have been identified.

Mr. **Murtha**. This is a higher risk, the estimates are overly optimistic the American-made airplane is not going to be flying in the near future, is that accurate in your opinion?

Mr. **Welch**. I believe that is high risk. They were to fly this summer and they are now showing flying schedules in the order of November.

Mr. **Murtha**. The Congress said buy American.

Mr. **Welch**. I think there was an indication to look for United States contractors to compete. I am not sure of the exact language, but I believe there needed to be a United States competitor in the competition.

Mr. **Murtha**. Do you have this airplane flying overseas?

Mr. **Welch**. There are people overseas that, with very minor modifications to doors, that can meet the specifications.

Mr. **Murtha**. If you buy it off the shelf, would the price be basically the same or cheaper?

Mr. **Welch**. I believe the price would be nominally higher from the prices that we have seen because you have people here who are designing to a specific cost.

Mr. **Murtha**. How much sooner would you get it in the air if you bought it overseas?

Mr. **Welch**. If the United States manufacturers make their schedule, they would have to say the same. It has to be flying and certified to compete. Our RFP says that you cannot compete unless you have a certified aircraft to meet this. Since we have three manufacturers who are designing specifically for this mission, they should be able to——

Mr. **Murtha**. This is a small program, but I get confused with your answers. This is a $74 million program, is that right, something like that? You can go and buy these things right now overseas, right?

Mr. **Welch**. Yes, sir.

Mr. **Murtha**. And you can't buy them in the United States right now?

Mr. **Welch**. Not today.

Mr. **Murtha**. They are not flying now?

Mr. **Welch**. Yes, sir.

Mr. **Murtha**. So it will take a while to get them?

Mr. **Welch**. Yes, sir.

Mr. **Murtha**. You can get them quicker overseas. If you need them in Panama and they will probably be 2 or 3 years in the system longer than if you buy them overseas, it looks like it makes more sense to just buy the things.

Mr. **Welch**. We would be happy to run a competition overseas. The number was $84.6 million plus a little military construction in 1990 and another $86.8 million in 1991.

Mr. **Murtha**. Mr. McDade.

LOW ALTITUDE NAVIGATION AND TARGETING INFRARED SYSTEM FOR NIGHT

Mr. **McDade**. Thank you, Mr. Chairman.

Let me address your attention to the LANTIRN program, which is in full rate production. The director of operational testing and evaluation approved full-scale production in December, 1988. His report, however, raised the following issues about which we would like the Air Force to respond. The operational test pilots evaluated LANTIRN's usability for single-seat laser-guided bomb delivery as marginal.

General **Yates**. There were some things which we found that needed to be enhanced for a single-seat LGB delivery. Those fixes have been designed and flight tested, and will be put into production which will improve that situation.

Mr. **McDade**. So you agree that it is marginal and you are now doing a retrofit?

General **Yates**. I agree that it was marginal.

Mr. **McDade**. A retrofit is in place?

General **Yates**. The problem I am talking about is a software fix. What we had was the pilot delivered the bomb and as he was pulling off the cross hairs on the target, tended to drift so he would have to keep looking back down at the presentation, tweaking the cross hairs, and moving them over. That was a time-consuming thing to do when he was at low altitude at night trying to right the airplane. So there is a software fix which enables the cross hairs to hang on to the target better.

Mr. McDade. Is it in place?

General Yates. It has been flight tested, works, and fixes the problem. I will have to tell you for the record the production incorporation.

[The information follows:]

A LANTIRN Targeting Pod advanced tracking capability has been developed which corrects an earlier tracker drift problem. This system improvement has been thoroughly demonstrated to maintain track during aircraft maneuvers. Production incorporation is planned for targeting pod number five which is scheduled to be delivered to the Air Force in July 1989.

Mr. McDade. When it is in, it is no longer marginal?

General Yates. Correct.

Mr. McDade. He said that the LANTIRN system and especially the targeting pod is susceptible to electro-optical counter measures.

Do you want to comment on that, please?

General Yates. Sir, I am sorry. I will have to provide that.

Mr. Welch. I would have to say that it is an electro-optical system that can be susceptible to electro-optical countermeasures but there was some countermeasures testing done and there was not a specific deficiency cited against a given electro-optical countermeasure.

Mr. McDade. We want to hear that if that is the fact. If it isn't, we want to hear what is the fact.

Is it susceptible? We know everything can have a countermeasure, but is there something out there that we overlooked and needs a fix?

[Clerk's note.—Classified insert removed.]

Mr. McDade. You said the complete LANTIRN system will require high levels of F-16 pilot proficiency and training. Is there some extra measure of training and proficiency required on the use of the LANTIRN system?

General Yates. Yes, sir, there is. We are asking these guys to go out and do things that people have not done before. So they are going to be operating on LANTIRN missions exclusively at night and exclusively at low altitude.

Mr. McDade. What kind of altitude are they at?

General Yates. Two-hundred feet.

Mr. McDade. At what speed?

General Yates. Four-hundred and fifty knots. I have flown the system at 100 feet at 550 knots and it is quite comfortable, but that is basically an unnatural act by anybody's imagination. But to help us with the training, we have developed a visor cover so what we can provide the pilot with only the vision that he will need to see the instrumentation and everything else to him is opaque, blacked out. So we won't have to do all this training at night. In other words, guys won't have to turn their whole lives around and never do anything but fly at night. We still have to do considerable night flying.

We think that in terms of getting flight hours will a LANTIRN pilot have to get more flight hours, the answer to that is no. But he will have to get a different kind of training and that is what we have just talked about. It will have to be more low altitude. And he will have to get more nighttime than guys do now.

Mr. McDade. So you in effect agree with what the officer said?

General YATES. Yes, sir. I would simply say, sir, that is a fact. I don't know that it is a pro or con, it is just a fact.

Mr. McDADE. You agree with his fact?

General YATES. Yes.

Mr. McDADE. The logistics reliability of the targeting pod is rated marginal because of the high-failure rate of the central electronics unit and components within the nose/roll section.

General YATES. That was another area that we had to fix, and have fixed. The targeting pod is meeting its requirement as far as reliability is concerned, so that particular discrepancy was one that in fact was uncovered and one that had to be fixed.

Mr. McDADE. So it is no longer marginal?

General YATES. That is fixed.

Mr. McDADE. What about the electronics unit and components within the nose/roll section?

General YATES. We have fixed that.

AIRBORNE SELF-PROTECTION JAMMER

Mr. McDADE. Let's talk about the ASPJ program. Last year the Congress reduced the Air Force portion of the ASPJ program by $167,950,000 and 86 units. The 1990 budget includes a total of $252,700,000 for 75 units and aircraft modification costs.

Bring the Committee up to date on the status of operational testing.

General YATES. The status is that we will complete OT&E testing this month. The unit is looking very good. The Air Force again wants to see the proof of the pudding, so the production verification units, which are being produced, will be tested on F-16 block 40 airplanes.

Mr. McDADE. Those are the ones they will be used in?

General YATES. Yes. We want to test the real production unit on the real airplane to make sure that the unit functions right, that there isn't a mismatch. The Air Force is not going to commit to higher production rates until that is done. So you see 75 units. We have requested 75 in 1990. We will stay in there at 1991 until we finish those tests.

Mr. McDADE. What are the details of the integration of the F-16A fire control radar and ASPJ?

General YATES. You have to have an interference blanker unit to make sure that you don't jam your own radar. That also has been developed. I know of no problems with it.

Mr. McDADE. No glitches in the integration of the two?

General YATES. Sir, I don't believe so. I am not aware of any.

I will give you a straight answer for the record.

[The information follows:]

During recently completed F-16A/ASPJ testing, the ASPJ was not integrated with the Fire Control Radar (FCR) since ASPJ is not planned for operational use on the F-16A. The F-16C ASPJ/FCR integration testing is ongoing in the F-16C Systems Integration Lab and Integration Test Station at General Dynamics, Fort Worth, Texas. There have been no major problems identified to date. In summer of 1989, F-16C Block 40 ASPJ/FCR Integration testing will be conducted in the General Dynamics, Fort Worth anechoic chamber in preparation for Development and Operational Flight tests (DT/OT-IID) to be conducted with an ASPJ Full Scale Development system in the F-16C to verify FCR full interoperability. In addition to the above, an ASPJ production verification system will undergo laboratory integra-

tion testing at General Dynamics and DT/OT-IIE flight tests on the F-16C in fiscal year 1991.

Mr. McDADE. Did you already testify that F-16C assets are available for the testing?

General YATES. They are.

Mr. McDADE. What are the ASPJ's capabilities against monopulse radars? There is a GAO report out that says that as designed, the ASPJ would have ———. What is your response to that?

General YATES. Sir, I would have to give you an answer to that for the record.

[CLERK'S NOTE.—Classified insert removed.]

General YATES. As far as I know, we are supposed to have a capability against those things. I would have to look at that specific question.

Mr. McDADE. Please notify our staff, will you?

Do you know when a Defense Acquisition Board limited decision is expected?

General YATES. Yes, sir. There is a DAB in April of this year.

Mr. McDADE. Can you tell us the status of production verification units? When will they be delivered?

General YATES. The first one will be delivered in October of this year.

Mr. McDADE. Will any production verification units be flight tested before a full-rate decision is made?

General YATES. Yes, sir. Those are the units I mentioned earlier that the Air Force would test on an Air Force F-16 Block 40 airplane before we went to full-rate production.

Mr. McDADE. When do you expect the full-rate production decision?

General YATES. It would be in 1992.

Mr. McDADE. What reliability and maintainability provisions are contained in the current contracts?

General YATES. There is a warranty provision on the units which covers any time we remove the unit. It covers both removals and turn-around times and they are warranted to the Air Force.

Mr. McDADE. Do you need any strengthening in those kinds of provisions?

General YATES. I think they are very good.

Mr. McDADE. What are the cost budget analyses of such provisions? How do they look from a cost-budget point of view?

Put that in the record.

[The information follows:]

The production verification contract (N00019-87-C0300) requires the contractor to conduct Environmental Qualification Tests, Bench Integration Tests, BIT Demonstration Tests, Interchangeability Tests, and Electromagnetic Interference Tests. The Reliability Growth Test requires up to 2000 hours of testing under representative temperature and vibration and environments. A minimum Mean-Time-Between-Failure of 110 hours must be demonstrated prior to the end of testing. All of these tests are to be conducted on ASPJ production verification units and the corrections of all deficiencies found must be incorporated into all fielded units by the contractor, at no additional cost to the government.

Mr. McDADE. What is the total number of ASPJ units forecast for procurement, by service and by fiscal year? What is the total program cost and the unit price?

Put that in the record.

[The information follows:]

	Fiscal year—			Total
	1989	1990	1991	
USN	41	80	82	784
USAF	50	75	75	1,040
Total	91	155	157	1,824

Total Program Cost: $7.9 billion (then year dollars); $3.9 billion (1979 dollars).

Design to unit Production Cost: (Current Estimate in 79$) $.516 million (500th Basic System); $.136 million (170th Augmentation Set to make a Common System).

Fiscal year 1992, 1993, and 1994 quantities and dollars to be determined in future budgets.

Mr. **McDade**. The Department submitted a reprogramming action earlier in the year related to ASPJ. The Air Force wanted to change the first aircraft to receive ASPJ. Another committee denied the reprogramming for technical reasons. Another reprogramming action is expected shortly. Explain the rationale behind and amounts included in the reprogramming.

General **Yates**. The reprogramming was for $102.4 million. What the Air Force priorities are is we first put the ASPJ on to these LANTIRN airplanes that we were discussing earlier. The reason is the LANTIRN system has two pods on the outside of the airplane. If we have to carry an ECM pod also on the outside of the airplane we have a lot of drag and we are not able to carry bombs, which is why we took it off to begin with.

We want to put the internal jammer on the Block 40 airplanes so we do not have to carry that other external pod. So our priorities then are to retrofit, first, the Block 40s and then include an in-line production into the next series of airplanes, Block 50s.

So the reprogramming was really to change the color of the money, not the quantity, and take it from a production install to a mod line.

AIR FORCE AEROSPACE PLAN

Mr. **McDade**. Mr. Secretary, for the past 2 or 3 years the Air Force has not been able to submit its annual aerospace plan to the Congress in a timely manner. It is unclear whether the delays are intentional or not.

The 1987 plan, which was supposed to be published in July, 1987, was finally received more than nine months late. The 1988 plan, nominally expected in July, 1988, still has not been received.

Will you do what you can to raise the priority of this document within the Air Force and see that it gets submitted in a more timely manner?

Mr. **Welch**. OK. I think that what we haven't done is communicate the fact that it was apparently no longer required, and we will go ahead and do that. Last year, I think you reminded me of the same subject that we said we were going to try to submit and show our road maps in terms of capturing our plan. Yes, sir, we will correct the situation.

Mr. **McDade**. Thank you, Mr. Secretary.

Thank you, General.

Mr. MURTHA. Thank you, gentlemen, we have other questions for you to answer for the record. The Committee will adjourn until 10:00 o'clock tomorrow.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

C-17 PRODUCTION RATE

Question. The $37 billion estimate assumes a production rate expected to be reduced by the Bush budget amendment and assumes multiyear procurement beginning in fiscal year 1992. What is the revised total program cost with a stretched out procurement plan and no multiyear procurement until 1994 or later?

Answer. The C-17 program has not been stretched out; therefore, no revised procurement costs or revised multiyear plan exists.

Question. The December 31, 1988, Selected Acquisition Report shows the Air Force hopes to reduce procurement costs by $2.8 billion (then year dollars). Specifically, how does the Air Force plan to do this? What is the current status of these cost reduction efforts?

Answer. The Air Force has initiated several efforts to avoid cost growth as stated in the December 1988 SAR. These efforts include total quality management (TQM), an incremental should cost, a could cost, procurement pooling and others. TQM is an on-going effort to strive for the highest quality at the lowest possible cost. It involves not only an Air Force commitment but is being paralleled by TQM efforts at Douglas Aircraft Company. The first incremental should cost exercise began on March 15, 1989. This effort will culminate with contract award scheduled for January 1990, but pending T-1 assembly completion (event-based contract award). The other cost reduction efforts are in work.

Question. The December 31, 1988, SAR also shows that multiyear procurement could reduce costs by over $930 million (then year dollars). What is the estimate based on and how firm is it?

Answer. The multiyear procurement estimate in the SAR is an Air Force estimate based on experience from other multiyear programs, and in the case of the C-17 engine, discussions with the contractor. This estimate was accomplished by applying factors to the airframe, engine, and avionics costs for annual procurement for fiscal years 1993-1996 with economic order quantity advance funding included in fiscal year 1992. The factors are 9 percent for airframe, 5.8 percent for avionics, and 4 percent for engines. This estimate was accomplished without Douglas Aircraft Company input. Further discussions with Douglas Aircraft Company and subcontractors will assure that all potential multiyear savings are realized.

Question. When will the C-17 meet the criteria for multiyear year procurement? When does the program need to receive multiyear procurement authority in order to realize the estimated cost savings? Why are the forecast multiyear savings, at 6.8 percent, so low?

Answer. The C-17 program will meet all multiyear criteria by fiscal year 1993. Authority needs to be received to allow contract award of fiscal year 1992 economic order quantity advanced buy funding for this purchase. The C-17's overall funding requirements would increase if multiyear was delayed or not approved as planned due to adjustments made for multiyear savings in the December 31, 1988, SAR.

Question. The December 31, 1988, SAR also shows reduced costs of about $500 million (then year dollars) due to changes in economic escalation indices. What are the reasons for changing the indices and how reasonable are they?

Answer. The indices are the Administration's rates negotiated by OSD and OMB. These rates not only apply to DOD, but to all government agencies. The rates are based upon economic forecasts.

Question. What is the estimated cost for incorporating defensive systems in the C-17 and how firm are the current estimates? What is the origin and nature of the requirement? Why hasn't it been included in the program before?

Answer. The estimated cost is $437 million based upon a preliminary planning configuration. Douglas Aircraft Company is conducting an analysis to determine the most cost/mission effective defensive system suite and will present a report on the results of this study. After review, the Air Force will select a defensive suite and Douglas Aircraft Company will submit a firm cost proposal in April 1990. The requirement for a defensive system is based on the threat the C-17 will encounter. This requirement is stated in a validated Air Force Statement of Operational Need and funding is being requested to acquire the appropriate suite.

MC-130H COMBAT TALON II

Question. What are the major provisions of the contracts under which the industry team is currently operating?

Answer. There are two existing contracts for the Combat Talon II program. One is with Lockheed for the basic C-130H aircraft, and the other is with IBM for the integration of the avionics which includes the radar. Emerson manufactures the radar, and they are a vendor to IBM. Currently, we are on contract with Lockheed for 18 basic aircraft and on contract with IBM for 11 avionics integration modifications. IBM, in turn, is on contract with Emerson for 18 installed radars, 4 spare radars, and 3 development radars.

The restructure modifies the existing contract with IBM and contains the following provisions:

a. Extends the flight test program from 12 to 19 months.

b. Provides additional factory test equipment for the radar.

c. Provides three radar sets dedicated to development and reliability testing.

d. Provides for additional contractor support and test equipment at the test site.

e. Procures level-three drawings for the radar to establish an organic depot maintenance capability.

f. Establishes an award fee spread over three years which will provide incentive to the contractor to manage the development effort.

The restructure is on contract and has no impact on any follow-on procurements. However, in order to procure the four aircraft authorized and appropriated in fiscal year 1989, Congressional approval of a $125 million reprogramming action is necessary by June 1989 as explained below.

Question. Are there expiration dates for remaining production options?

Answer. IBM has submitted a proposal to integrate the remaining 13 aircraft for a total of 24. This proposal contains a firm-fixed-price for procurement of 7 avionics integration modifications in fiscal year 1988, and not-to-exceed options for 4 more in fiscal year 1989 and 2 more in fiscal year 1990. Contract award for both the fiscal year 1988 and fiscal year 1989 effort is planned for August 1989. If contract award is delayed beyond August 1989, there will be a radar production break which will result in both a schedule slip and additional costs. Approval of the fiscal year 1989 reprogramming for $125 million is needed by June 1989 in order to complete negotiations and award the contract by August 1989. The production option for fiscal year 1990 expires in October 1990.

AC-130U GUNSHIP

Question. The AC-130U gunship program is experiencing development problems. The contractor (Rockwell International) has estimated it will lose approximately $85 million on the development contract and two priced production options. Bring the Committee up to date on the reasons for the problems with the program.

Answer. Rockwell underestimated the effort required for the AC-130U program. They failed to lock down their sub-contractors at source selection. After source selection, several vendor costs were higher than Rockwell had anticipated. This alone resulted in a cost increase of approximately $30 million. There have been subsequent cost overruns. Rockwell also has experienced schedule delays due primarily to lagging software development and design changes. The design changes are now under control.

Question. The critical design review of the program has slipped approximately six months. What has been the effect on the rest of the program? Specifically address first flight and initial operational capability.

Answer. The scheduled completion date for the critical design review slipped four months (January 1989–May 1989). Currently Rockwell has not officially slipped either the date for the first flight, or the initial operational capability. The SPO feels that the date for the first flight is high risk. It will be reassessed after completion of the critical design review and adjusted if necessary.

Question. How do you assess the contractor's willingness to complete the program? How does the present attitude contrast with 6–12 months ago?

Answer. Rockwell's attitude concerning commitment to the program appears significantly better than six months ago. At the same time Rockwell has increased efforts to find a legal solution to its problems. It is not unusual for a contractor that is trying to recoup, or limit future losses to explore such remedies. In February Rockwell committed in writing to work the program within the contract.

Question. The Committee understands that while the contractor has indicated a commitment to finish the program it is seeking extra money from the Air Force in two instances. Apparently the first one involves a pricing error from the original production matrix developed by the contractor. The second is a claim against the Air Force for demanding work outside the scope of the contract.

Why shouldn't the contractor be expected to absorb the impact of any pricing error made in the source selection?

Answer. The contractor has submitted a claim for $18 million on a pricing matrix error for the production option. According to the Federal Acquisition Regulation (para 14.406-4), the claim must prove that the unilateral error made by the contractor should have been apparent to the government. The Rockwell claim is under legal review. We expect to provide an answer to them by 21 April 1989.

Question. What are the details of the work out of scope claim, especially concerning the requirement for an internal jamming system, the ALQ-172 instead of an externally mounted pod, the ALQ-184.

Answer. The Air Force did not specify that Rockwell has to use the ALQ-172. Instead the Air Force specified a performance requirement. It was left to Rockwell to propose the system that would meet that performance. During source selection Rockwell used the ALQ-184 in pricing their bid. After award of the fixed price incentive contract, Rockwell conducted a trade study. They realized the ALQ-184 would not meet the performance requirement, selected the ALQ-172 and presented it as their solution at the Preliminary Design Review. The Air Force accepted their proposal.

T-37 STRUCTURAL LIFE EXTENSION PROGRAM

Question. Two years ago, the Air Force made an argument for a structural life extension program (SLEP) for the T-37 trainer aircraft. The total cost of the SLEP was approximately $300 million, divided between procurement and operation and maintenance funded installation. The SLEP was to include six items and extend the aircraft's service life past the current limit of 18,000 hours.

What are the details of the SLEP change of scope?

Answer. As a result of Damage Tolerance Analysis AFLC has determined that the scope of the SLEP program could change from a mandatory replacement of six structural components to a mandatory inspection of structural components with replacement as required.

Question. When will the T-37 fall out of the active inventory under the revised program? When would they have fallen out under the original plan?

Answer. The revised SLEP calls for 8,000 hours of service life per aircraft after the initial inspection/replacement as necessary (The original SLEP proposal called for 15,000 hours of service life after the installation of the six structural components). At the end of the 8,000 hours the revised SLEP would require reinspection/replacement of components, as necessary, to further extend flying service life if that were deemed appropriate at the time.

Question. What is the dollar and schedule impact of the revised SLEP compared to the original six pack, on a fiscal year basis?

Answer. Revised funding profile is as follows:

Fiscal year:		
1988	7.9 million (3010)	
1989	11 million (3010)	
1990	10 million (3010)	.5 million (3400)
1991	12.2 million (3010)	25.1 million (3400)
1992		27.8 million (3400)
1993		.3 million (3400)
Total	41.1 million (3010)	53.7 million (3400)

Question. If the TTTS program were delayed for any reason, what impact would that have on the revised T-37 SLEP and usage?

Answer. None. There is no relationship between the T-37 SLEP Program and the TTTS program.

C-27 STOL AIRCRAFT

Question. Two years ago the Administration requested funds to purchase the first five of a total buy of 10 short takeoff and landing aircraft for SOUTHCOM. Due to concerns with inadequately defined requirements, these funds were not authorized or appropriated. The 1990 budget includes $74.4 million plus $10.1 million in spares for such an aircraft. It is noted that the takeoff distance for the aircraft has been relaxed by 20 percent, from 1500 to 1800 feet. What documentation do you have to attempt to prove to Congress that the requirements for the C-27 are firm? Specifically, what were the results of the Rand study?

Answer. The need has always been firm. The requirements documents supporting the need have evolved over the last several years as our knowledge of the challenge and the candidate aircraft to meet that challenge has increased. That evolution has followed a logical acquisition course from the US Southern Command Required Operational Capability (USSOUTHCOM ROC), the Headquarters, Military Airlift Command Statement of Operational Need (HQ MAC SON), and subsequently to the HQ MAC Draft System Operational Requirements Document (SORD). HQ MAC is now preparing to release the approved SORD which will serve as the basis for the request for proposals. With respect to C-27 performance requirements, they also remain basically firm. However, performance requirements must remain flexible to accommodate changes in US Army and Air Force operational requirements and procedures. For example, payload requirements have been adjusted to reflect the Army's recent increase in the combat weights of infantrymen and paratroopers. The increase in takeoff distance from 1500 to 1800 feet with the result of integrating the latest change to Army Field Manual 5-330, "Planning and Design of Roads, Airfields, and the Heliports in the Theater of Operations," with MAC Regulation 3-3," "Combat Control Team Operations and Procedures," and current MAC operating philosophy. Since most requirements are driven by other requirements, we face an extremely dynamic situation and we are making a concentrated effort to maintain as much flexibility as possible for as long as possible during the C-27 acquisition process thus allowing us to be responsive to requirements as they may occur.

Concerning the results of the RAND study, RAND determined that a C-27 aircraft would have a major operational performance edge over other aircraft in third-world situations, whether in peacetime or in conflict. The ability to operate to and from short, poor airstrips is essential in such settings. The RAND study also states that on economic grounds, in terms of operational needs for both peacetime and low-intensity conflict situations, and as a vital aspect of overall defense preparedness, the C-27 requirement is both valid and important.

Question. When do you expect to issue a request for proposals for the program?

Answer. A draft request for proposal (RFP) will be issued in September, 1989. A final RFP will be issued on December 1, 1989.

Question. What companies have expressed an interest in the program and what are their candidate aircraft?

Answer. Several companies have expressed interest in developing a short takeoff and landing airlift which could meet the C-27 requirement. Five companies currently have candidate aircraft in production of full scale engineering development:

a. Aeritalia (Italy)/Chrysler Technologies (Waco, TX) Aeritalia G-222;

b. SAC North America, Inc. (Deland, FL) Ahrens C-180B;

c. Bromon Aircraft Corporation (Borinquin, PR) Bromon BR-2000;

d. CASA (Spain)/Rockwell International (Palmdale, CA) CASA CN-235; and

e. Snow and Associates, Inc. (Columbus, OH) Snow SA-210TA.

Question. The beddown of the C-27 at Howard AFB, Panama assumes $7.2 million in military construction funding, is that correct?

Answer. Yes, that is correct. The projects funded under this request are essential to the beddown of the airplanes.

Question. If those funds are not appropriated due to concerns with turning over the Canal Zone to Panama by the end of the century, how and where will the C-27 by supported?

Answer. Currently, the Howard ramp and facilities are "maxed out." For the C-27 to operate safely for the number of years remaining under the treaty additional facilities are required. If no funds are appropriated, the C-27 will have to be operated at a lesser efficiency to insure safety is not compromised due to the lack of adequate facilities. Other work around options will have to be explored.

ADVANCED RADAR WARNING RECEIVER

Question. On December 20, 1988, the Air Force announced the award of a $20.4 million contract to Loral Corporation for 19 ALR-56M, advanced radar warning receiver, systems. Priced production options of 77, 258, and 319 systems for fiscal years 1990-1992 bring the total contract value to $188 million. Within one week of contract award, the Department of Justice released an affidavit which indicated this system and this award may have been affected by persons under investigation for activities in the so-called "Ill Wind" case. The losing contractor, Litton, promptly filed a protest with the General Accounting Office. What is the statuts of the protest? When is an answer expected?

Answer. GAO decision (File; #B-234060), dated May 12, 1989, and received by the Air Force on May 15, 1989, concluded, based on information contained in an affidavit unsealed on December 27, 1988, that Loral improperly obtained source selection information concerning Litton's product. The GAO recommended that the Air Force terminate the Loral contract for convenience and pay Litton protest costs, including reasonable attorney's fees. On May 29, 1989, the Air Force formally requested the GAO to reconsider its decision. This action was taken on the basis that GAO (1) failed to follow precedent, (2) improperly recommended relief for alleged misconduct, (3) recommendation results in interim less capable system, and (4) recommendation will result in prohibitive cost increase for the advanced warning receiver program.

Question. If it is subsequently determined that the contract award was obtained through illegal means, what avenues of action are open to the Air Force concerning ARWR procurement?

Answer. The government has a number of options. The government could cancel the contract if there is clear and convincing evidence of fraud or conflict of interest. When a contract is canceled, it is usually considered void, and there are no longer any rights or duties between the parties. The government would ordinarily be required to pay reasonable value for any tangible items received. Another option would be to invoke the government's rights under the profit recapture clause of the ARWR contract. The clause provides that the government may reduce the profit, if (1) a person or entity is convicted for violating certain fraud or conflict of interest statutes in obtaining the contract or, (2) the Secretary of Defense or his designee determines that an employee or agent of the contract improperly obtained source selection information.

Question. What is the total planned buy of ARWRs split by weapons platforms and by fiscal year?

Answer. Total planned buy of the ALR-56M is 1961 systems. Other potential applications include B-1B, C-17 and C-130 aircraft, but no firm buy schedules exist at this time. Sufficient quantities are available in ALR-56M contract options to meet B-1B requirements.

ALR—56M PROCUREMENT SCHEDULE

	Fiscal year—						To Comp	Total
	1989	1990	1991	1992	1993	1994		
F-16 support	15	10						25
F-16 block 50 production		61	150	150	150	150	390	1,051
F-16 block 40 retrofit	4	12	78	139	158	36		427
RF-4C retro		36	72	72	55	46		281
Spares (10 percent of installs)	1	11	30	36	36	23	39	177
Total	20	130	330	397	399	255	429	1,961

Question. Which F-16s will receive ARWRs first? What are the beddown locations? What is the retrofit schedule for existing F-16s?

Answer. Block 50 F-16C/D aircraft will receive ALR-56M first, starting with the first production aircraft to be delivered in October 1991. Planned beddown locations are classified. Retrofit of F-16 Block 40 aircraft is scheduled to begin in October 1992. The Block 40 retrofit schedule is shown below.

Fiscal year:	
1991	[1] 2
1992	[1] 2
1993	100
1994	105
To Comp	218
Total	427

[1] Trial installs.

[2] Kit proofing.

Question. What is the current Air Force position regarding foreign military sales of ALR-56M?

Answer. The Air Force is in favor of foreign military sales of the ALR-56M. Release of the policy necessary for sales is being held pending completion of a GAO investigation.

Question. What is the Air Force position concerning developing a second source for the production of ALR-56Ms? What is the timing of such a proposal and how much would it cost to develop a second source?

Answer. It has always been the intent of the Air Force to second source the F-16 Advanced Radar Warning Receiver (ARWR) which ever system (Loral's ALR-56M or Litton's ALR-74) was selected. The F-16 ARWR Request for Proposal included a requirement that each contractor submit a plan with their proposal for selections and qualifying a second source(s) for each line replaceable unit and selected critical components. Further, the ARWR contract requires that 25 percent of the fiscal year 1991 production buy (65 of 258 systems) and 35 percent of the fiscal year 1992 production buy (112 of 319 systems) be second sourced. The ALR-56M contractor, Loral as part of their competition strategy, bid the selection and qualification of a second source at no cost. Rather, they chose to use corporate funds for the second sourcing requirement of the contract. No government funds will be involved. A separate job order has been established by Loral to track their second sourcing costs and to provide the government visibility in order to ensure that these costs are in fact not being charged to the government.

Question. There have been reliability problems with the ALR-56C. How have those concerns been addressed with the ALR-56M? Are there reliability and maintainability specifications in the Loral contract?

Answer. The ALR-56M contract calls for a guaranteed MTBF of 305 hours. The Air Force and the contractors will accumulate reliability data for the delivered RWRs to determine the actual field MTBF. If the reliability of the system does not meet the requirement of 305 hours by delivery of Lot IV, the contractor will be liable for extra spares to meet the guaranteed availability.

Question. What is the current mean-time-between-failure experience for the ALR-56C, the ALR-56M and what is projected for the mature ALR-56M system?

Answer. ALR-56C field MTBF is currently 80 hours, and will be warranted at this figure under the Lot XVI production contract. The contract MTBF for the ALR-56M is 305 hours after delivery of Lot IV.

Question. Are there any peculiar Group A integration issues that need to be resolved to facilitate installation of the ALR-56M, both in production line F-16s and those already in existence?

Answer. No. The Group A was defined, qualified, and flight tested before the source selection.

Question. What exactly must be done to the F-16 to prepare it for ALR-56M installation?

Answer. The original plan for Group A on Blocks 40 and 50 F-16s called for dual Group A to be installed, a full complement for ALR-69 (as a fallback) and partial for ALR-74 (source has not been selected). Block 40 aircraft are being delivered in this configuration. The ALR-56M uses much of this Group A but some wiring harness rework and connector changes are required for power distribution system differences. Also the ALR-56M does not require an antenna switch LRU used by the ALR-69 and ALR-74. For production incorporation, ALR-56M specific Group A will be installed instead of the originally planned dual Group A.

Question. What is the unit cost for F-16 Group A changes?

Answer. Unit kit cost for Block 40 retrofit is $27,700. The unit production cost for Block 50 is $13,000. The cost includes nonrecurring for design and trial installation/kit proofing.

JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM (JTIDS)

Question. There was considerable activity last year in the JTIDS program. The Air Force restructured its class 2 terminal requirements and system reliability of 316 hours mean time between failures was demonstrated in bench tests. The 1990 procurement request of $44.4 million would produce 20 terminals for F-15s, all that the Air Force intends to buy. What is the status of the 1988 and 1989 procurement dollars for JTIDS? Does the Air Force have any intentions of trying to reduce available funding through reprogramming actions?

Answer. Fiscal years 1988 and 1989 JTIDS procurement funds in the F-15 line remain unobligated awaiting the August 1989 Milestone IIIA DAB. After a production decision, fiscal years 1988 and 1989 money will be coupled with fiscal year 1990 funds to start up the two contractor production lines for Class 2 terminal production for all users, and to purchase the F-15 portion of the total Class 2 buy. There are no intentions of reprogramming JTIDS funds out of the F-15 line; loss of production line start up funding would require replacement in order to initiate production runs for any one or all of the services' Class 2 terminal requirements.

Question. Will any additional testing be accomplished before the DAB review to demonstrate a 400 hour MTBF rate?

Answer. Since inception of reliability growth activities, we have completed 4,506 hours of Test Analyze-And-Fix (TAAF), and 2,061 hours of Reliability Verification Testing (RVT); our latest RVT ran 1266 hours and experienced only four critical failures—above the growth curve for this point in development. The 400 hour milestone occurs two years after IOC (now projected for late fiscal year 1993), and will be achieved by adding to the already documented data all the hours and critical failures documented in testing (including the DT and OT currently ongoing at Eglin AFB) and all operating hours documented on production units as they mature after delivery. The ongoing January through May tests at Eglin seek correlation of the improvements documented in the RVT, but do not focus on the 400 hour threshold. We intend to proceed to the August DAB in accordance with fiscal year 1989 House Appropriations Committee Report direction that states ". . . the Committee believes it prudent for the Air Force to begin preparing for the Defense Acquisition Board (DAB) procurement milestone when JTIDS reaches 250 hours MTBF on the growth curve and is demonstrating satisfactory progress toward 400 hours MTBF."

Question. When do you hope to be on contract with 1988/1989 procurement funding?

Answer. Given a successful August 1989 DAB and expeditious contracting actions, contracting of these funds should be completed by October 15, 1989.

Question. What is the latest total inventory objective for JTIDS Class 2 terminals? Please provide by fiscal year and service/platform/FMS.

Answer. Only the currently funded platforms are included in the attached production chart. Other platforms, such as Rivet Joint and Airborne Battlefield Command and Control Center (ABCCC), are considering installation.

Question. In your opinion, does the current leader/follower acquisition strategy still make sense?

Answer. This is the currently directed strategy for FSD. Production strategy is for a dual prime competitive bid process. The acquisition strategy supports a three year low rate production run for approximately 250 Class 2 terminals plus spares for seven platforms for all three services. Competition is essential to keep costs under control and get the most value for each dollar spent.

JTIDS PRODUCTION UNITS BY FISCAL YEAR

JTIDS CLASS 2 TERMINALS/SPARES

USER	90 & PRIOR	91	92	93	94	95	96	97	98	99	TOTAL
F-15	29/05										29/05
E-3		06/01	12/04	13/10	10/04						41/19
MCE			13/01	32/16	31/22	30/22					106/61
JSTARS			04/05	02/00	04/00	08/00	08/00	08/00	10/00		44/05
ARMY			70/05	81/04	86/18	108/09	101/08	88/08			534/52
NAVY F-14		40/TD	99/TD	82/TD	82/TD	72/TD	77/TD	77/TD	00/TD	00/TD	529/TD
E-2		12/TD	23/TD	31/TD	22/TD	24/TD	07/TD				119/TD
SHIPS		10/TD	14/TD	17/TD	24/TD	17/TD	13/TD	11/TD	00/TD		106/TD
USMC				21/00	21/00						42/00
US TOTAL	29/05	68/01+	235/15+	279/30+	280/44+	259/31+	206/08+	184/08+	10/+	00/	1550/142+
UK/ROF	86/	01/		60/	60/	60/	60/				327/
TOTAL	115/05	69/01+	235/15+	339/30+	340/44+	319/31+	266/08+	184/08+	10/+	00/	1877/142+

MAXIMUM PRODUCTION RATE IS 480/YR (20/MO PER CONTRACTOR - 2 CONTRACTORS)

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27 MAR 89 R3

ELECTRONIC COUNTERMEASURES PODS

Question. Last year's budget request included approximately $180 million to buy 150 ALQ–184 pods and related support equipment. This Committee, and others, directed that ECM pod funds be used only in conjunction with a competition between ALQ–184 and ALQ–131 Block II pods. Is the Air Force complying with this guidance?

Answer. Yes. The request for proposals (RFP) was issued to Westinghouse (ALQ–131 Blcok II) and Raytheon (ALQ–184) on March 23, 1989.

Question. When do you expect to be on contract with the 1989 buy?

Answer. August 1989.

Question. How many pods of each type do you expect to buy in 1989 and 1990.

Answer. The Source Selection Authority (SSA) will evaluate each offeror's response to the RFP and make a decision on the split between the two contractors. This information will not be available until July/August 1989.

Question. How much money do you think will be saved by this Congressionally mandated competition?

Answer. In the quasi-competitive environment of the last two years, unit costs of the ALQ–131 Block II have decreased approximately 20 percent. We expect a similar patern for the ALQ–184, allowing us to buy 20 percent more pods each year than we would get in a sole source environment. Assuming annual funding of $180 million, total savings across the five year buy can be expected to buy out our requirement a year early, and save $180 million.

Question. How have the concerns raised by the OSD operational test office that the ALQ–184 pod not proceed past low rate production been resolved?

Answer. The Air Force has addressed ALQ–184 baseline system hardware and software concerns raised by OSD. Some of these fixes have been incorporated and the remainder are being flight tested and will be put into existing and future pods. The decisions on future operational enhancements to the ALQ–184 (and ALQ–131) are being held in abeyance while less costly and lower risk alternatives are being evaluated.

ACQUISITION STRATEGY PANELS

Question. Last fall, the Air Force Systems Command initiated a program of acquisition strategy panels to review procurement plans and schedules. How do the panels operate? What is their function and what is their membership?

Answer. Acquisition excellence begins with up-front program planning. AFSC has strongly re-emphasized the importance of acquisition stragegy planning by instituting a formal review process known as the Acquisition Strategy Panel (ASP). The Program Director develops the strategy for the acquisition and the ASP provides a comprehensive review of the program's overall strategy.

Each panel is aimed at helping the Program Director develop the best plan for the program which will satisfy the user's requirement and is consistent with Air Force program direction. These panels consist of AFSC's top experts, appointed as standing members, and represent such critical disciplines as engineering, budget, test, legal, logistics, and contracts. The system user is integrally involved as well as representatives from the Air Staff.

There are two levels of review. For smaller programs, a field panel is convened at the AFSC Product Division with occasional headquarters participation. For major programs, a headquarters panel is convened. ASPs are conducted whenever a program approaches a major acquisition milestone. As a program approaches subsequent phases, follow-on ASPs are conducted.

Question. Did the panels replace existing entities or do they represent another level of the procurement bureaucracy?

Answer. ASPs do not represent another level of the procurement bureaucracy. They replaced the old Business Strategy Panel, and at the same time greatly broadened the scope to systematically include all functional disciplines which impact the acquisition strategy. Specific program aspects reviewed at an ASP include:

(1) Design requirements and goals to ensure proper emphasis not only on system performance, but also reliability, maintainability, producibility, and quality during the design process,

(2) Logistics issues to ensure full treatment of these critical areas. Special emphasis is given to proper planning of transition from contractor to government maintenance and support,

(3) Testing requirements are heavily emphasized to include the adequacy and availability of test assets,

(4) Risks are critically assessed, and plans developed to mitigate marginal risk areas,

(5) Funding availability and timing,

(6) Compliance with statutory and regulatory requirements, and,

(7) Contract strategy including use of competition, contract type, and special terms and conditions.

Question. What programs have been reviewed to date by the panels?

Answer. During fiscal year 1988 twenty-six (26) headquarters level ASPs and 95 Product Division level ASPs were conducted. During fiscal year 1989 to date, 10 headquarters level ASPs and approximately 40 Product Division level ASPs have been conducted. Programs reviewed by the headquarters ASP include GPS, MLV, DMSP, DSCS III, IR Maverick, IPE, F-16, HAVE NAP, TITAN IV, SEEK SPINNER, AWACS RSIP, MIDS, C-17, SFW, DELTA II, COMBAT EDGE, ALASKA ACMI, NASP, BSTS, TTTS, AFSCN Support, SLC-7, and AMRAAM.

Question. What program changes have occurred as a result of the panel reviews? What time and/or money has been saved by the panel reviews?

Answer. Usually, major "program changes" do not occur as a result of the ASP review. However, improvements in the acquisition approach do occur on a regular basis. For example, contract types, definition of the risks involved in technical performance or schedule, approaches on test, system warranties, and incentivizing the contractor are regularly fine tuned.

One recent example of a program change occurred on a pilot training system when the ASP was able to help the user define program requirements in a way that would not restrict strategy approaches. The Program Director was then able to develop a strategy that would guarantee 20 years of training capability, and not be limited by artificial constraints such as fleet size or service life estimates. Without this change, adequate competition would not have been possible since the constraints severely limited the ability of most potential offers to satisfy the user's requirements.

On another program, for a conventional stand-off weapon, the proposed strategy did not allow for adequate test assets prior to a production decision. This would have created undue cost and schedule risk in the production phase. As a result of the panel's recommendations, the program schedule was restructured to allow for a sufficient number of fully configured missiles to be tested.

Software development risks were unacceptably high in one radar improvement program. As a result of the ASP review, a risk reduction effort was undertaken to better define the unknown areas and mitigate that risk prior to finalizing the strategy for the overall program. That program office also was experiencing a severe shortfall in manpower required to execute the program. The headquarters' manpower experts were then able to work the problem and allocate sufficient resources, alleviating the shortfall and avoiding future work load problems.

These kinds of improvement, regularly achieved as a result of the AFSC ASP reviews, are more qualitative in nature than quantitative. These qualitative improvements do not lend themselves to immediate measure in terms of time and money savings. The objective of the ASP is to assist the Program Director in developing a sound acquisition strategy, applying lessons learned from past programs, that will avoid the kind of contractual problems that inevitably lead to increases in cost, slips in schedule, and failure to meet the user's requirement consistent with program direction.

AIR FORCE ONE

Question. Congress approved funding for Air Force One replacement aircraft in 1986. The first aircraft was to be delivered in November 1988 and the second in May 1989. The total value of the fixed price contract was $266 million. The contractor, Boeing, has experienced great problems with wiring the aircraft. The first delivery will not occur until at least one year after the November 1988 target date. The second delivery is now scheduled for November 1990. What happened? Why was Boeing so far off the mark in terms of cost and schedule?

Answer. Basically, Boeing underestimated the scope and the complexity of modifying the B–747 aircraft to meet Air Force operational requirements. They did not have the right engineering expertise available, they experienced numerous engineering errors, and several of their vendors did not deliver parts/components on time. These factors, in turn, led to problems with wiring installation and checkout and caused schedule problems from which Boeing could not recover. In an effort to recover schedule, Boeing added manpower and went to overtime and a 3-shift, 7-day/week operation; but despite these efforts, aircraft deliveries slipped 1 year and 1½ years, respectively. Thus, the overall project cost Boeing much more money than they had planned on at the outset.

Question. How much do you estimate Boeing will lose on the contract?

Answer. Air Force estimates, as of December 1988, indicate that Boeing will spend approximately $650 million on the AF-1 contract for which they will receive $265 million ($229 million for aircraft procurement and $36 million for RDT&E)—this represents a loss to Boeing of $385 million.

Question. At the request of the Air Force, Congress created a 1989 P-1 line for Air Force One to accommodate a possible reprogramming action for out of scope change proposals. What is the situation? Will a reprogramming be required, and if so, how much and when?

Answer. In addition to the $1 million Congress appropriated in fiscal year 1989, a $9.9 million reprogramming was required; however, the reprogramming action is internal to the Air Force and no Congressional action is anticipated at this time. We have already approved a $.9 million reprogramming, and Aeronautical Systems Division has forwarded the sources for the remaining $9 million to Air Force Systems Command for coordination and approval; we expect the request to be approved before the start of ground testing in June 1989. The Air Force will use the $9 million to correct deficiencies which we find during qualification/operational testing that, to fix, may fall outside the scope of the current contract. Since the new Air Force One aircraft will have several unique systems/items on it that are first-time-ever systems on a B-747, we may find that while a particular system may meet the system specification (and, therefore, the contract), it may not meet operational requirements. Barring any major problems during testing, the $9 million will pay for such out-of-scope items, so that we can deliver a deficient-free aircraft to the President.

FAULTY F-16 ENGINES

Question. Late last month the Air Force grounded more than 100 F-16 aircraft due to problems with the F/110-GE-100 engine. How serious a problem is that? Are all the grounded aircraft now back flying?

Answer. Because this problem could create a safety-of-flight problem, we moved quickly to ensure the safe operation of the fleet by requiring an inspection before next flight. General Electric then moved very rapidly to develop the necessary inspection procedures, and, in cooperation with the Air Force, to provide the field with the inspection capability required to safely continue to meet the flying mission requirements.

All aircraft have been inspected and returned to flight status. The final aircraft was released for flight on March 13, 1989.

Question. What is the long term solution and who will pay for it?

Answer. The cause of this problem is currently under investigation; the long term solution will not be firmly defined until the cause is specifically identified. An interim solution of an improved cowl and an inspection program have been put in place until a long term solution is implemented. Given the current understanding of the problem, it is possible that the interim solution hardware will be acceptable as the final solution.

In accordance with the contract, General Electric will investigate to determine the cause of the problem under the fixed price production contract at no additional cost to the government. Once the cause of the problem is identified, payment for development and retrofit (if appropriate and required) of alternative long term solution hardware would be negotiated between General Electric and the Air Force based on warranty cost avoidance, the competitive environment, and other factors.

Question. Do warranty provisions with the contractor adequately cover the situation?

Answer. The contractor, General Electric, is honoring all of the warranty commitments of the contract. Improved components are being provided to replace all cowls on installed and spare engines and spare combustor assemblies at no increase in contract price. In addition, General Electric provided personnel and equipment to accomplish the inspections until the Air Force could obtain this capability, again at no increase in contract price. Based on these facts, the warranty has adequately covered this situation.

Question. Is this a design flaw and does the same flaw exist in the improved performance engine?

Answer. An investigation has been initiated to provide for a complete assessment of this problem; this effort will examine the material characteristics of the combustor and the manufacturing processes used to produce it, the potential defects which could occur in both materials and workmanship, and will include test and evaluation to identify any design shortcomings. To date, there is insufficient evidence to conclude that a design flaw does or does not exist.

Due to higher operating temperatures and pressures, this component was completely redesigned for the F110-GE-129 and employs damping fixes and improved materials throughout.

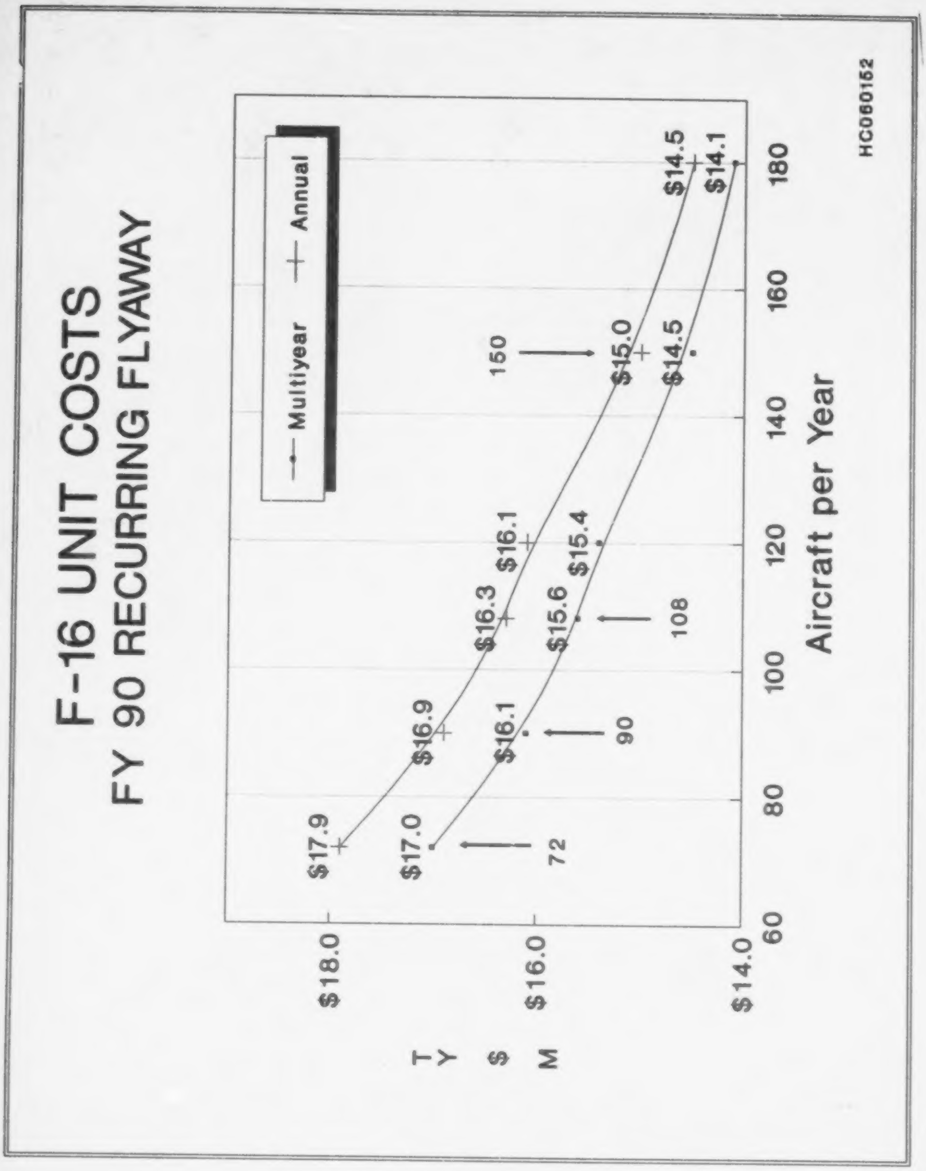
TACTICAL AIRCRAFT UNIT COSTS

Question. The 1990 budget as submitted in January requests funds for 36 F-15 and 150 F-16 aircraft. Both programs are proposed for multiyear procurement. What are the unit costs of each aircraft as contained in the budget? What are the unit costs if annual procurement is used?

Answer. The multiyear procurement unit recurring flyaway cost in then year dollars contained in the fiscal year 1990 President's budget for the F-15 is $31.8 million. If annual procurement is used, the cost would be $34.0 million. The multiyear procurement unit recurring flyaway cost in then year dollars contained in the fiscal year 1990 President's budget for the F-16 is $14.5 million. If annual procurement is used, the cost would be $15.0 million.

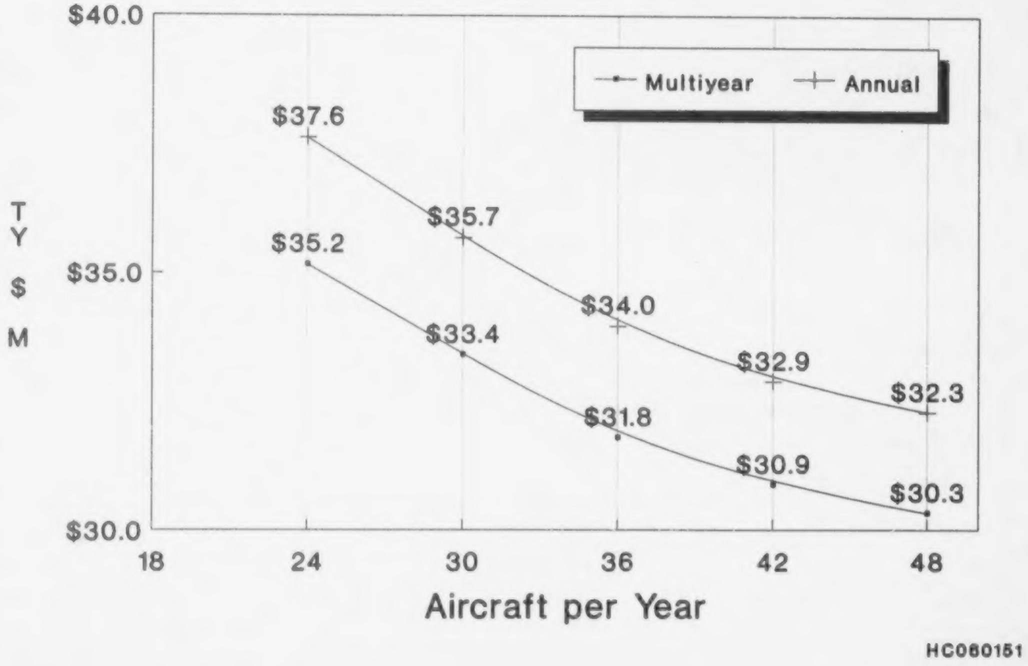
Question. For the record, provide a chart indicating unit costs for the F-15 at annual production rates of 24, 30, 36, 42, and 48. For the F-16, provide unit costs at 72, 90, 108, 120, 150, and 180 aircraft. For both programs, show costs with and without multiyear procurements.

Answer. Accompanying charts provide requested information.



F-16 UNIT COSTS
FY 90 RECURRING FLYAWAY

F-15E UNIT COSTS
FY 90 RECURRING FLYAWAY



F-15A/B MULTI-STAGED IMPROVEMENT PROGRAM (MSIP)

Question. Last year the Congress appropriated $15 million to modify old F-15A/B aircraft to the multistaged improvement program (MSIP) configuration. When do you hope to be on contract?

Answer. By the fourth quarter of fiscal year 1989.

Question. How many aircraft can be modified for $15 million?

Answer. Ten (10) aircraft.

Question. Which units will have the first aircraft modified?

Answer. The 116th Tactical Fighter Wing at Dobbins, Georgia possesses 26 F-15A/B aircraft. Their aircraft will be the first modified.

Question. What is the total number of Air Guard F-15s needing MSIP modification? What is the estimate of total cost to modify all aircraft?

Answer. 118 ANG F-15A/Bs currently need MSIP. The cost to modify all ANG F-15A/B aircraft is $180 million.

[CLERK'S NOTE.—End of questions submitted for the record.]

WEDNESDAY, APRIL 19, 1989.

MISSILE AND OTHER PROCUREMENT, AIR FORCE

WITNESSES

HON. JOHN J. WELCH, JR., ASSISTANT SECRETARY OF THE AIR FORCE (ACQUISITION)

LT. GEN. RONALD W. YATES, PRINCIPAL DEPUTY ASSISTANT SECRETARY (ACQUISITION)

MAJ. GEN. EDWARD R. BRACKEN, DIRECTOR OF LOGISTICS PLANS AND PROGRAMS

INTRODUCTION

Mr. MURTHA. The Committee will come to order. This morning the Committee will hear testimony in support of the fiscal year 1990 budget requests for Air Force Missile Procurement and Other Procurement. The missile procurement account request of $7.7 billion reflects an increase of eight percent above 1989. The other procurement account, excluding electronics and communications equipment, increases two percent to $6.3 billion.

Our principal witnesses today are the Honorable John J. Welch, Jr., Assistant Secretary of the Air Force for Acquisition, Lieutenant General Ronald W. Yates, Principal Deputy Assistant Secretary, and Major General Edward R. Bracken, Director of Logistics Plans and Programs.

We want to welcome Secretary Welch back to the Committee with General Yates and General Bracken. I guess you have all the miscellaneous parts?

General BRACKEN. Yes, sir.

Mr. MURTHA. How much money is that?

General BRACKEN. About $3.5 billion. It is a small account; when $5 billion of special projects are excluded.

Mr. MURTHA. Eight and a half billion dollars?

General BRACKEN. Yes, sir over $5 billion is special projects——

Mr. MURTHA. That is nearly as big as the budget of the state of Pennsylvania.

We will put your entire statement in the record, Mr. Secretary. If you will summarize, we will get right to the questions.

Mr. WELCH. We are prepared to answer questions.

[The joint statement of Mr. Welch and General Yates and the statement of General Bracken follow:]

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEE ON DEFENSE
UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: AIR FORCE MISSILE AND OTHER PROCUREMENT

STATEMENT OF: HONORABLE JOHN J. WELCH, Jr.
ASSISTANT SECRETARY OF THE AIR FORCE (ACQUISITION)

LIEUTENANT GENERAL RONALD W. YATES
PRINCIPAL DEPUTY ASST SECRETARY (ACQUISITION)

April 1989

NOT FOR PUBLICATION UNTIL CLEARED
BY THE DEPARTMENT OF DEFENSE AND
RELEASED BY THE COMMITTEE ON
APPROPRIATIONS, UNITED STATES
HOUSE OF REPRESENTATIVES

Mr. Chairman and Members of the Committee: I am pleased to appear before you to review the Air Force's proposed missile procurement activities for Fiscal Year 1990 and 1991.

Please note that the written statement I am providing today is based on the Reagan budget. Our formal Acquisition Statement will be provided to you when the amended budget is complete.

The program outlined in this report is based on the United States Air Force Acquisition Program which is designed to provide the systems and equipment needed by our Aerospace forces to implement our basic military strategy of deterrence in the most efficient manner possible. We continue to emphasize people as the first asset to develop and support. Our remaining priorities for this budget are

- Modernize strategic forces
- Maintain a high level of readiness and sustainability
- Increase airlift capability
- Modernize tactical forces
- Increase the use of space in military operations

This program has been formulated against a background of political and technological change of unprecedented magnitude. Soviet statements and proposals show remarkable reversals from past Soviet words and actions. Yet these statements and proposals are still not remotely similar to what we hear and see every day in modern democracies, nor have the Soviets translated the rhetoric into visible military reductions. In addition, General Secretary Gorbachev, though extraordinarily successful to date, is vulnerable in his own country to the consequences of failure. Therefore, we must base our military planning, as well as our development and acquisition of new systems, on the current capabilities of the Soviets, not their proposals or our own tendency toward optimistic evaluation of their intentions.

In addition to the Soviet concern, our close neighbors in Central America, our friends in the Middle and Far East, in Africa and South America face challenges to their security which could result in a call for our assistance. In some countries of the world there is bitter hostility toward the US, demonstrated by both words and action in the form of terrorism. We must therefore be prepared to support our friends, and protect our vital interests wherever they may be threatened. This demands the flexibility to participate throughout the spectrum of conflict, from low-intensity conflict to strategic nuclear war. That flexibility can not be created in one year or one budget. It requires a solid, continuing balance of readiness, sustainability, and modernization, all applied to a sound underlying force structure.

The Air Force budget was painstakingly crafted to keep our aerospace forces on a stable, prudent course for ensuring US security, balancing current readiness and sustainability with future investment. The programs were chosen carefully to continue the modernization of existing force structure while using economical production rates and multiyear contracting to replace older systems. In our deliberations we sought a balance among required military capability, program priorities, and budget realities. Our Air Force missile procurement programs support the budget priorities described above and are key to maintaining a deterrent force.

STRATEGIC MISSILES

The Air Force strategic modernization program is focused on improving the land-based ICBM and manned bomber legs of the Triad.

The budget continues the procurement and deployment of the Peacekeeper missile and development of the Rail Garrison basing mode for Peacekeeper. These ICBMs are highly reliable and provide a prompt and accurate response against hardened military targets. Although the details of how we should proceed to modernize our ICBMs is now under review, there appears to be general agreement that some form of mobility makes sense. The Soviet Union has already come to that conclusion and has deployed two mobile ICBMs, one on rail, the other a truck mobile system.

Under review by the Administration at present is whether to recommend a stand-alone Peacekeeper Rail Garrison system, a Small ICBM in Hardened Mobile Launchers, or some combination of the two. Clearly both systems have their supporters and the Administration will be recommending a program that meets US needs in terms of strategy, deterrence, arms control, cost, and support.

(DELETED)

TACTICAL MISSILES

The Soviets continue to field and develop a large, well-equipped conventional force. We must remain capable of countering any conventional threat in a decisive, timely manner. To maximize the capabilities of our tactical forces, a variety of new munitions are being developed and procured. These new munitions will arm our forces with several new and improved capabilities in air-to-air and air-to-surface roles. AMRAAM is a high performance missile which will reduce vulnerability to our aircraft while attacking multiple enemy aircraft. Other air-launched tactical munitions include the Maverick air-to-surface missile, Tacit Rainbow emitter attack missile, HAVE NAP medium range precision guided standoff conventional missile, and HARM air-to-surface anti-radiation missile. Our tactical missiles increase combat effectiveness and aircrew survivability.

SPACE OPERATIONS

US forces increasingly rely on space-based systems for communications, surveillance, warning, and weather data to support operations in both peace and conflict. Consistent with national and DoD space policies, we will continue efforts toward assured mission capability, balanced against operational requirements and fiscal priorities. Our successful launch recovery program has seen the return to flight status of each class of vehicle that was operating at the time of the Challenger disaster - Delta, Titan, and of course, the Shuttle. We have also had the first flight of a new generation of expendable systems, including the Titan II and Delta II; and the Titan IV will be operational soon. In our satellite systems, the next blocks of the Defense Support Program and the Defense Meteorological Satellite Program will continue to provide warning and weather data. Likewise, enhanced capabilities for our forces will be achieved with new capabilities such as the Global Positioning System of navigational satellites. Modernization of our strategic communications will be pursued through the survivable Milstar system. Our space systems will continue to be a keystone for support of both tactical and strategic missions.

The activities I've presented here today are part of a carefully balanced program. Sustaining efficient production and economical production rates can maintain the balance if stable funding backs it. We are committed to support these activities, and ask for your support.

Thank you, Mr. Chairman, for the opportunity to make this statement. We will be happy to answer your questions.

STATEMENT OF MAJOR GENERAL EDWARD R. BRACKEN

MR CHAIRMAN AND MEMBERS OF THE COMMITTEE:

I am pleased to provide you a summary of the Other Procurement, Air Force (OPAF) appropriation budget request for FY 1990 and FY 1991. Please note that my statement today is based on the Reagan Budget released in January. As you know, the amended budget is under review. The Other Procurement Appropriation consists of four separate budget programs; Munitions and Associated Equipment, Vehicular Equipment, Electronics and Telecommunications Equipment and Other Base Maintenance and Support Equipment. Although these programs are not necessarily the most glamourous, they are, in fact, the life-blood of the Air Force. Also included within this appropriation are classified special projects which are handled separately.

Equipment bought with these funds is essential for realizing the Air Force's goal of modernizing the force structure while maintaining readiness and sustainability. Our goal is to balance competing requirements through a careful review of the required capabilities, program priorities, and fiscal resources. The various elements of each budget program are designed to give the best capability for the dollars requested.

The Air Force is committed to fielding a balanced force that responds to the requirements of the DOD priorities of strategic modernization, improvements in readiness and sustainability, increased airlift capability, and modernization and expansion of the tactical forces. In today's constrained dollar environment, we have been forced to make difficult choices between procuring new systems, improving unit readiness through acquisition of needed equipment, and maintaining adequate force structure. This year the Air Force places a top priority on personnel support followed by readiness issues--that is, improving the readiness conditions of Air Force units worldwide.

The OPAF appropriation equates to vital hardware systems with significant impact on both the readiness and modernization of the Air Forces's capability. Adequate funding is critical to readiness, providing improved tactical and strategic communications, combat and flight line support vehicles, aerial and ground attack munitions, and last, but not least, base and personal equipment integral to mission accomplishment.

This appropriation also contains funds for the Air Force Reserve and the Air National Guard.

Let me now briefly give an overview of the Other Procurement appropriation before going into a more detailed description of the programs and the extend of importance to the Air Force.

The Munitions budget program is used to procure all conventional munitions and related equipment for three major segments: training, war reserve (WRM), and other munitions.

Vehicle equipment funding is primarily used for special purpose, base maintenance, materials handling, and cargo utility vehicles. Less than 5 percent of current funds are for passenger carrying vehicles.

Electronics and Telecommunications Equipment is the largest budget activity, when special projects are excluded from Other Base Maintenance and Support Equipment. This includes both strategic and tactical ground communications systems as well as the computer systems which are so essential for the effective management and command of the Air Force. Computer systems forge a more productive environment permitting the Air Force to do our business in the future with fewer people. In fact, we have already decremented our support forces based on these enhancements and have rolled these authorizations to direct warfighting skills.

The Other Base Maintenance and Support Equipment funds extremely important programs such as medical/dental equipment, air base operability, chemical-biological defense, night vision devices, ground power generators, as well as all the depot and base procured equipment which our bases need for daily operations.

I will now go into a more detailed discussion of the programs for each of the four budget activities.

MUNITIONS & ASSOCIATED EQUIPMENT

The munitions budget program provides for the procurement of all conventional munitions (except guided missiles) and associated equipment needed to support active Air Force, Air National Guard, and Air Force Reserve requirements.

The types of munitions include a variety of items such as rockets, small arms and aircraft cannon ammunition, practice and lethal bombs, infrared countermeasure flares, and weapons. The unit cost ranges from a few cents per round for small arms ammunition to more than $100,000 for the most complex and modern munitions such as the Sensor Fuzed Weapon. The vast majority of the items are managed by the Air Force Logistics Command and are procured by the US Army under the provisions of the Single Manager for Conventional Ammunition (SMCA) charter. The Air Force uses Military Interdepartmental Purchase Requests (MIPR) as the vehicle for passing our requirements to the SMCA. The Army acts as the procuring agent even to the extent of pricing these items through the SMCA's Conventional Ammunition Working Capital Fund (CAWCF).

In FY 1990 and 1991 the Air Force continues efforts to modernize munitions war reserve stockpiles. We will be introducing additional munitions that are maintained more easily, have greater reliability, allow for greater adaptability to a number of target sets, and can destroy high value targets with force multipliers with multiple kills per pass and reduced attrition using greater standoff.

One objective of procuring advanced munitions will be to strengthen our antiarmor capability through the initial production of the Sensor Fuzed Weapon (SFW). SFW is a cluster munition designed for direct attack against armored targets such as tanks, armored personnel carriers, and self-propelled artillery, as well as other wheeled vehicles. The second aspect will be to improve existing capability. The GBU-15 modular guided bomb system will be enhanced beginning in FY 1991. We are seeking funds for two distinct projects. The first is the improved data link (IDL) which upgrades the current data link terminal which is susceptible to current and projected enemy jamming. The second project is the GBU-15/Improved 2000 lb bomb integration kit. This kit will allow a GBU-15 guided bomb system to be mated to an Improved 2000 lb hard target bomb. This project will expand our hard target capability by providing us a second guided bomb system that can be utilized for this type of mission. The other guided bomb system is the current inventory GBU-24. In addition to these two efforts, we continue to produce the Combined Effects Munition (CEM). The other major bomb program will be BIGEYE. Both of these munitions I will discuss in greater detail later.

Another facet of our WRM munitions program is the need to continue previous progress toward obtaining our inventory objectives and to maintain a warm production base in case of hostilities. Our program may not be as robust as in previous years, but it does make a contribution to sustainability within the constraints of affordability and is consistent with the balanced force we want to maintain. We recognize the need for trade-offs, but we have made sensible decisions that maintain the substance of the WRM portion of the munitions program, i.e., a viable production base and progress toward achieving the sustainability goals specified in the Defense Guidance. We cannot afford to neglect those issues, but at the same time, we have to ensure that other production bases that produce critical components are kept healthy, that we do not allow munitions to outstrip other sustainability elements such as aircraft spares, maintenance, and operational readiness.

The other major segment of the munitions program is training munitions. These munitions support peacetime training of aircrews and various ground defense personnel such as security police, explosive ordnance disposal specialists, and special operations forces. The items provide initial training as well as upgrading and maintaining the proficiency of our personnel essential to our combat readiness posture.

The Air Force is facing a substantial challenge in obtaining adequate funding for training munitions in a time when the demand for training has increased and funding resources have decreased. In the past year we have reexamined our forecasting process for aircrew training munitions and developed a new operational-oriented method that provides training estimates more representative of the user's needs.

I would now like to highlight the variety of items within the Munitions and Associated Equipment program.

Rockets and Launchers

The funding in this category goes for 2.75 inch rockets, warheads and motors, and various rocket components. Most of the programs have remained at a stable level.

Cartridges

The cartridge category consists of several different types of items including small arms ammunition, aircraft cannon ammunition, grenades, stores ejection cartridges for aircraft pylons and bomb rockets, and signal cartridges.

Small Arms Ammunition

Small arms ammunition includes 5.56mm ammunition for security police and other air base ground defense personnel. Our requirements for ball and blank ammunition are increasing mainly because of problems we have had with the .22 caliber adapter that allowed us to use less expensive .22 caliber ammunition. The adapter has had a history of problems, and we have concluded it is unsuitable for military use. Lesser amounts of other types of small arms ammunition are being procured in the Items Less Than $2 million category.

Aircraft Cannon Ammunition

The two principal aircraft cannon ammunition items being procured are 20mm and 30mm training. There are two types of 20mm ammunition being requested: training and combat. The 20mm combat portion is composed of bulk ammunition for various fighter aircraft and linked ammunition used on Special Operations Forces (SOF) AC-130 gunships. The linked requirements have increased significantly to assist the SOF in meeting inventory objectives. Further, the SOF uses live 20mm ammunition as a substantial part of it's training program.

Bombs

This category represents the largest investment. Included are: cluster bombs, practice bombs, chemical bombs, and associated components such as inflatable retarder fins.

The Combined Effects Munition (CEM) continues as a major part of the munitions budget program. Our funding request is based on a multiyear procurement strategy downselecting to one producer.

This category includes an important new munition as well, the Sensor Fuzed Weapon. Funding is requested beginning in FY 1991. As I mentioned earlier this is a cluster munition designed for direct attack against armor. The value of this weapon is that it provides multiple kills per pass by using wide area coverage. It can be released at low altitudes, under adverse weather, during day or night.

As I alluded to earlier, we are continuing the BIGEYE program. The program continuity goal directed by the Congress will be achieved by maintaining an engineering effort and producing inert test assets for the Air Force's SEEK EAGLE program. The purpose of the SEEK EAGLE program is to certify aircraft/store compatibility, safe carriage and separation, and ballistics accuracy verification. These inert assets cannot be converted to lethal weapons, but they will provide valuable assistance in learning about the weapon's employment as well as minimizing production termination and start-up costs.

Other Items

This category consists of several different types of items such as infrared countermeasure flares, signal and trip flares, and spares and repair parts.

Infrared Countermeasure Flares

This segment constitutes the largest dollar value group within this category. Infrared countermeasure flares are used to decoy air-to-air and surface-to-air heat seeking missiles away from aircraft. Each flare is designed to mask the infrared signature of the aircraft for a sufficient period of time to decoy the missile and cause it to follow the flare rather than the aircraft. We are requesting funds for two major flare programs currently in production, the MJU-7 and MJU-23, the flare for the B-1 bomber.

Fuzes

This category requests funding for fuzes not procured with the bomb as an all-up round. The fuzes provide a variety of delivery and detonation options, primarily for general purpose bombs that are currently in the inventory. The FMU-139 is the only major fuze program for which funds are being requested, although in FY 1991 we are requesting funds for the DSU-30 proximity sensor.

Other Weapons

The others weapons category includes handguns, machine guns, and other small arms. This FY 1990 request includes funds for the procurement of wartime host nation support weapons. This program was initiated in FY 1987 as part of a signed agreement made by the United States and Germany on 15 April 1982. The FY 1990 procurement of 20MM AAA guns will complete the total weapons acquisition portion.

That completes the overview of the munitions and associated equipment portion of the OPAF appropriation.

VEHICULAR EQUIPMENT

Motor vehicles are intertwined in nearly every installation function and provide the means to not only transport people and supplies but also to launch and recover aircraft; maintain missile field combat readiness; move cargo; construct and maintain facilities; and contribute to the security and protection of all Air Force resources.

The Air Force requires 146,215 vehicles to conduct its day-to-day and wartime missions. We are short 18,169 or 12 percent, and of added concern is that, of those available, nearly one-fifth are in need of replacement. Heretofore, the inability to procure needed vehicles for replacement has been somewhat offset by full utilization of the depot overhaul and remanufacture programs which extended the life of approximately 11,000 high cost vehicles. Fiscally constrained depot maintenance programs, linked to the increasing number of vehicles deteriorated beyond economical repair, adversely affects heavy equipment vehicle operations capability throughout the Air Force.

I will now briefly describe each of the six vehicular equipment categories.

Special Purpose Vehicles

This category is comprised of vehicles designed to provide specialized functions such as: fueling and defueling aircraft, and flight line towing of aircraft, munitions and ground maintenance support equipment.

Fire Fighting Equipment

Fire and crash rescue equipment provides emergency crash and structural fire protection and rescue capability for Air Force facilities, aircraft, and personnel. All vehicles in this category are vital to Air Force structural and crash fire protection.

Materials Handling Equipment

This group of vehicles provides the Air Force with the capability for aircraft loading and munitions/supplies handling. Materials handling equipment is essential to maintaining a viable worldwide air cargo system capable of deploying forces to meet contingency requirements at any time.

Cargo-Utility Vehicles

Vehicles in this category are of both commercial and military design and consist of pickup trucks, heavy cargo trucks, truck tractors, trailers, and dump trucks, among others, which provide cargo movement capability. In addition to providing mobility for tactical communications, the commercially designed vehicles in this category contribute to direct operational support throughout the Air Force. This assortment of transport vehicles provides the prime source of personnel and cargo distribution at any operating location.

Base Maintenance Support and Construction Equipment

Vehicles in this category form the backbone of the Air Base Operability (ABO) capability. They are also operated by Air Force Civil Engineers in providing maintenance of runways, roads, pavements and grounds. Equipment includes scoop loaders excavators, and snow removal and sweepers. Vehicle modifications and spares and repair parts are also included in this category.

Passenger Carrying Vehicles

This category includes ambulances, law enforcement sedans, and other sedans and station wagons. Station wagons and buses are the primary mode of transportation for aircrews and posting of security forces.

This concludes the Vehicular Equipment overview. The next program I will address is Electronics and Telecommunications Equipment.

ELECTRONICS AND TELECOMMUNICATIONS EQUIPMENT

The Electronics and Telecommunications program acquires Command, Control, Communications, and Computer (C4) systems and equipment. This equipment ranges from small hand-held radios to large, one-of-a-kind surveillance radars. The C4 equipment acquired with Other Procurement funds is used only in ground applications.

For purposes of presentation, I have opted to discuss the programs by functional categories rather than the budget structure categories.

COMSEC

The Air Force Communications Security (COMSEC) program equipment encompasses a wide range of equipment including that needed to secure both voice and data communications for strategic and tactical forces as well as all equipment supporting such systems as the Space Transportation System, the Satellite Control Facility, Defense Satellite Communications System, and special projects. Beginning in FY 1990, funding for all COMSEC requirements are found in the Space Systems P-1 line.

Intelligence

The Intelligence Communications portion of the program consists of: Intelligence Equipment Items Less Than $2.0 Million; Intelligence Training Equipment to support basic and supplemental training; Intelligence Data Handling System to support SAC and CENTCOM missions; Intelligence Communications Equipment which supports special access programs and Tactical SIGINT Support equipment for tactical cryptological programs.

Strategic Communications Equipment

Equipment in this category supports strategic defense, space programs, and command and control of strategic forces. In discussing this category, I will cover three sub-groupings of Strategic Defense, Strategic Connectivity, and Space Systems.

Strategic Defense

Strategic Defense systems provide tactical warning and attack assessment of impending attacks against the North American continent. Following are the major programs included in the FY 1990/1991 request.

Over-the-Horizon-Backscatter (OTH-B) Radar. OTH-B will provide wide area, long-range, all-altitude surveillance against air breathing threats to North America. The long range coverage of OTH-B gives increased warning time and increases survivability of our retaliatory forces while providing additional decision time for the National Command Authorities. FY 1990 funding will procure the last sector for the Alaskan Radar System. The first sector of the Central U.S. System is planned for procurement in FY 1991.

Defense Support Program. The Defense Support Program (DSP) is a mature operational system with the high priority mission of early warning of ballistic missile attack. Improvements to mission capability and survivability are being proposed. These include the Satellite Readout Station Upgrade which will install newer, more supportable equipment used to transmit, receive, and record data between DSP satellites and the large processing stations supporting them.

Minimally Attended Radar System/USAF-FAA Radar Upgrade. A joint Air Force and Federal Aviation Administration upgrade program replaces aging radars of the Joint Surveillance System providing air defense radar information around the U.S. periphery. These radars, operated and maintained by FAA, will feed data to both USAF and FAA centers and will permit closure of many Air Force manned radar sites.

DEW Radar Stations/North Warning System. The North Warning System will replace 31 aged Distant Early Warning (DEW) Line radar sites with a combination of long-range, minimally-attended radars and unattended short-range gapfiller radars. The North Warning System will improve NORAD's atmospheric surveillance capability while reducing operations and maintenance (O&M) costs by sharing O&M costs with Canada.

Strategic Connectivity

Strategic connectivity embraces command and control systems which transmit early warning assessment and other decision making information to and from military commanders and the National Command Authority. Major programs are addressed in more detail.

Cheyenne Mountain Complex. The NORAD Command Post located in Cheyenne Mountain provides the Commander-in-Chief of NORAD with the facilities and communications necessary to exercise command and control over his assigned forces and to provide essential decision-making information to the National Command Authorities. Funding supports Space Defense Operations Center upgrade and interface to the communications system segment; command post work stations and group display devices; automatic intrusion detection sensors and alarms; and the Command Center Processing and Display System

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Milstar. The Milstar satellite communications system will provide worldwide, two-way, secure, highly jam-resistant voice and data communications to link the National Command Authority strategic and tactical forces through all levels of conflict or crisis. Requirements include a complement of EHF/UHF terminals; hand held modules/time distribution subsets in support of the modem upgrade currently in production; nine EHF antenna support structures required at each Milstar ground installation; and solid state uninterruptible power systems for ground Milstar sites.

Space Systems

The third portion of the Strategic Communications Program consists of those ground communications facilities required to support space and missile test ranges, satellite control, space systems operations, and meteorological satellites. Noteworthy programs include:

support space and missile test ranges, satellite control, space systems operations, and meteorological satellites. Noteworthy programs include:

Satellite Control Facility. The Satellite Control Facility, now redesignated as the Air Force Satellite Control Network (AFSCN), is a national asset tasked to support the research, development, test, evaluation, and operation of satellite systems. It supports test operations with real-time telemetry, tracking, and command and control. This is accomplished through a worldwide series of remote tracking stations, an extensive communications network, and the two central control nodes at Onizuka AFB and Falcon AFB. Improvements include complete replacement of equipment at all existing Remote Tracking stations to reduce operating and maintenance costs, replacing antiquated equipment to improve the satellite control network efficiency and equipment reliability, and continuing efforts to keep AFSCN compatible with changes in current satellite programs.

SAMTO Test Range I&M. The Space and Missile Test Organization (SAMTO) manages two national ranges; the Eastern and the Western Test Ranges at Patrick AFB and Vandenberg AFB respectively. SAMTO provides the primary support for all this Nation's strategic missile and space launch programs, conducts radar tracking and telemetry tests in support of aeronautical test operations, and supports operational testing of the United Kingdom's Polaris ballistic launches. We will be replacing or upgrading numerous portions of tracking and instrumentation systems reaching the end of their useful life.

This concludes the strategic portion of our request. The next category covers Tactical Communications Equipment.

Tactical Communications Equipment

This program will provide modern, interoperable, jam-resistant, and secure C3 equipment for theater and tactical forces. These are divided into two equally important areas: Tactical Command and Control, and Tactical Communications.

Tactical Command and Control

The theater commanders require the ability to communicate with theater forces for command and control. The communication systems must be flexible and effective. Equipment to provide such communication capability must be mobile and reliable. A discussion of principal programs follows.

Tactical Air Control System Improvements (TACSI). The Tactical Air Control System (TACS) makes maximum use of the tactical aircraft in combat by providing the means for centralized control and decentralized execution. The TACS Improvement program acquires state-of-the-art replacement equipment and capabilities essential to survival and combat effectiveness of tactical command and control. This program replaces large, unsupportable, easily targeted, tactical operations centers with survivable, transportable, modular command and control centers. The acquisition of the Air Force Modular Control Equipment (MCE) is a joint effort with the Marine Corps. The Marine Corps is the lead service agency for this procurement. The MCE provides for tactical integration of offensive and defensive operations, enroute air traffic control, and digital data links to all DOD theater forces and NATO allies. Plans call for a low rate initial production for the MCE. In addition, we will continue procurement of the Ultra Low Sidelobe Antenna (ULSA) and, under the Contingency TACS Planning System, begin procurement of a family of operations/communications shelters for automating and connecting the Tactical Air Control Centers, Air Support Operations Center, and tactical units. We also will begin initial procurement of an anti-radiation missile (ARM) decoy that will enhance the surivability of ULSA-equipped radars in a hostile environment.

Caribbean Basin Radar Network (CBRN). Caribbean Basin Radar Network procurement will provide command, control, and communications. Radars for the Caribbean region will be managed by the U.S. Southern and Atlantic Commands. The new ground-based radars will be netted to existing ground-based radars in the region to provide surveillance for air traffic management, drug and arms interdiction, attack warning, and control of air defense/tactical aircraft.

Military Airlift Command/Command and Control. This program continues upgrades to centralized command and control of the MAC airlift fleet. This ongoing program merges computer and communications technologies to optimize utilization of our limited airlift resources. We plan to continue the upgrade of our strategic and tactical airlift command and control system, a system that has not been significantly improved in the last 20 years. Specifically, emphasis will be on production of the Automatic Communications Processor used to control high frequency radio equipment, the Information Processing System which will provide critical airlift command and control automation, and shelter facilities for those MAC echelons with a deployable mission.

Tactical Communications

Funding in this area supports communications equipment for theater operations which serve a variety of purposes, all of which are vital to continued connectivity and efficiency. Mobile communications equipment is a must in every combat scenario and an effective force multiplier.

Joint Tactical Communications Program (TRI-TAC). The Joint Tactical Communications Program (TRI-TAC) fields a new generation of tactical communications equipment that can be used by all services in combat. The TRI-TAC program provides a family of modern, interoperable, secure, digital equipment sorely needed to replace outdated systems.

USSOCOM. Funds supporting the United States Special Operations Command (USSOCOM) provide for modernization and upgrade of command, control, and communications systems needed to support the worldwide mission of USSOCOM and Air Force Special Operations Forces (SOF).

Satellite Terminals. This program includes Air Force procurement of satellite communications (SATCOM) terminals and associated hardware to support the command and control requirements of Unified and Specified CINCs and the connectivity requirements of the National Command Authority (NCA), US strategic and tactical forces, and NATO. Primary procurement in this program will support inclusion of sensor sites and additional command centers for expansion of the Jam Resistant Secure Communications (JRSC), a subset of the Defense Satellite Communications System.

Tactical C-E Equipment. The Tactical C-E Equipment procurement line is used to acquire essential communications and computer equipment to satisfy C4 system requirements in support of the command-unique command and control systems of Alaskan Air Command, United States Air Forces Europe, Tactical Air Command, deployable systems of the Tactical Air Control System, and Combat Communications Units. This program provides modern, securable, and rugged radios for Tactical Air Control Parties communication needs during close air support operations. Continued procurement of small mobile satellite ground terminals to support wartime taskings; lightweight handheld message processors for point-to-point and netted communications; and continued procurement of USAFE and TAC Tactical Command and Control Systems modernization equipment is also requested.

Anti-Jam Voice. HAVE QUICK II Ultra High Frequency GRC-XXX radios will be procured. These radios will allow jam-resistant communications for air defense and certain air traffic control facilities needing interoperability with HAVE QUICK equipped aircraft and between Air Force and Army units in the forward battle area.

Base Communications Electronics Equipment

The Air Force has requirements for common user base support communications through what we refer to as Base Communications-Electronics Equipment. These include systems for:

Weather Observation & Forecasting. We plan to continue upgrades and replacements of worldwide systems used by the Air Force Air Weather Service to support vital missions. The largest requests are for the Automated Weather Distribution System (AWDS) and Next Generation Weather Radar (NEXRAD) programs. These two programs will modernize 1940-1950s era Air Weather Service base weather stations at 166 Air Force and Army sites worldwide and replace current fixed radars which will enhance the Air Force's ability to protect scarce military resources from severe weather.

Automatic Data Processing Equipment (ADPE). This program provides funds for new acquisitions and equipment additions to government-owned computer systems. Items to be purchased are commercially available automatic data processing equipment (ADPE) from various manufacturers and third-party vendors for management and mission support applications. New systems and system upgrades directly support operational mission requirements. Many programs are continued implementations of efforts begun in previous years.

WWMCCS/WIS ADPE. Funding for the WWMCCS/WIS program will continue procurement of hardware to provide ADPE support to the Air Force World Wide Military Command and Control System (WWMCCS) Information System and the Air Force Command and Control System.

Air Force Physical Security Systems. Increasing investment costs of weapons systems, growing emphasis on anti-terrorist programs, and the cost effectiveness of replacing obsolete systems, make procurement of security systems for critical resources necessary and smart. Continued acquisition of physical security systems is essential.

Weapons Storage and Security. The Weapons Storage and Security Systems provides vaults for storage of tactical nuclear weapons overseas. Enhanced weapons survivability and greater security and safety will be achieved through this program.

Base Level Data Automation. The Base Level Data Automation program provides data processing support to virtually every base- level functional area at Air Force Reserve, Air National

Guard, and active Air Force installations world-wide. The program involves four essential systems: the Core Automated Maintenance System (CAMS), the Cargo Movement Operations System (CMOS), Base Level Upgrades, and the Combat Ammunition System for Base level operations (CAS-B).

Telephone Exchange. Telephone systems at a number of Air Force installations are antiquated, based on World War II technology and require replacement. Our operational mission demands for service generally exceed the capacity of today's systems in both quality and quantity. Our efforts to fix the telephone infrastructure at these locations is the centerpiece of our efforts to take advantage of computer technology to enhance operational capability and produce productivity savings. Our request continues necessary procurement and leased-system buy-back of telephone exchange systems.

Wideband Systems Upgrade. This program replaces slow, maintenance intensive unencrypted wideband communication systems, with high speed, bulk encrypted, highly reliable digital systems. Improvements to the Digital European Backbone (DEB) and Japan Reconfiguration and Digitization (JRD) will upgrade the Defense Communications System in Europe and Japan, respectively.

Logistics Support and Training

The final category of presentation is the Logistics Support and Training program. Procurements include initial and replenishment spares, equipment modifications, training equipment, and those essential support items costing less than $2.0 million.

Range Improvement Program. The Range Improvement Program procures equipment to support training and evaluation of aircrews and to support operational testing of weapons systems and tactics under simulated combat conditions. Equipment is needed to improve the realism of the combat environment simulation training performed by the Air Force and to yield more complete and accurate data for evaluation and interpretation of training performed. The Range Improvement Program supports vital ongoing aircrew training at Air Force ranges worldwide.

Spares and Repair Parts. Spares funding includes both initial and replenishment spares. Spares requirements are phased to ensure that essential spare parts are available and in place at the same time as the operational equipment reaches the field. The increased funds request for spares is reflective of the general increase in the Electronics and Telecommunications equipment programs. Yet, even with the increase, spares are funded at approximately 53 percent of the projected spares requirement for both FY 1990 and FY 1991.

Items Less Than $2.0 Million. Items Less Than $2.0 Million involve numerous items of electronics and telecommunications equipment supporting Air Force Logistics Command's Table of Allowance authorizations. Air Force units requisition items for Command, Control, Communications, and Computer support based on authorizations contained in Tables of Allowances which tailor support equipment authorizations to unit missions. No single item procured in this line costs more than $2.0 million.

Class IV Modifications. Class IV Modifications correct safety deficiencies, material deficiencies, and/or logistic support problems. Without this program, the Air Force faces the added cost of new acquisitions or continued deteriorations or safety hazards associated with existing systems. Planned modifications include:

a Troposcatter Radio used as part of the European Communications Systems; precision approach control radars; an Air Traffic Control System to provide real-time display of aircraft and light data; SEEK IGLOO Radar Upgrade; Tempelhof Airport Automation System; training range equipment; and the FPS-85 DEEP SPACE Radar.

This concludes an overview of the key programs covered by the Electronics and Telecommunications umbrella. I will now turn my discussion to a fourth Other Procurement Air Force area, the Base Maintenance and Support Equipment programs.

OTHER BASE MAINTENANCE AND SUPPORT EQUIPMENT

This budget activity includes the widest variety of diverse equipment and special programs. The equipment procured supports the total force, all major commands and separate operating agencies as well as the Air National Guard (ANG) and Air Force Reserve. The diverse nature of the programs directly or indirectly supports every weapon system in the Air Force inventory, every USAF unit and installation, and all military personnel including military dependents. Although most items are small dollar value and unglamorous, they are essential elements of combat readiness and sustainability.

Funds requested provide the basic logistics infrastructure for day-to-day operations as well as the mobility, readiness, sustainability and survivability which makes possible rapid worldwide deployment. Equipment items requested include the highly sophisticated electronic test equipment used in Precision Measurement Equipment Laboratories (PMELs); various items of chemical and biological defense equipment ranging from the low cost MCU-2/P Mask to the large, more costly Survivable Collective Protective System. Night vision goggles, mechanized material handling systems, aircraft arresting barriers, air base operability equipment, medical and dental investment equipment, and tactical shelters for special operations forces are also procured. For budgeting purposes, Other Base Maintenance and Support Equipment is divided into six categories.

Test Equipment

The Test Equipment category provides a wide range of common electronic test equipment used throughout the Air Force to calibrate other test equipment and maintain a variety of combat weapons systems. Included are calibration standards and equipment, oscilloscopes, signal generators, power sensor meters, and spectrum analyzers to name a few. As more modern and sophisticated systems enter the Air Force inventory, present test equipment cannot satisfy the accuracies demanded by these state- of-the-art weapon systems. The program supports 120 Air Force Precision Measurement Equipment Laboratories, including four ANG laboratories, and the Aerospace Guidance and Metrology Center at Newark AFS, Ohio.

Personal Safety and Rescue Equipment

Personal Safety and Rescue Equipment consists of chemical and biological defense equipment, life preservers, life rafts and night vision goggles. Chemical and biological defense equipment is the largest budget line in this category, and represents a concerted effort to counter the increasing chemical threat posed by Warsaw Pact and third world nations. Individual and collective protection items as well as detection and warning equipment to increase survivability and enable Air Force combat forces to sustain operations in a chemical warfare environment are requested. A major element of the program is the Survivable Collective Protection System (SCPS) which is essential to ensure our personnel are adequately protected against both the chemical and conventional threat. These systems will also provide our crisis management system additional time for assessment of operational options.

Depot Plant and Material Handling Equipment

Depot Plant and Materials Handling Equipment automates material processing at bases, air logistics centers and air terminals throughout the world. The mechanization equipment includes high density storage systems, pallet handling systems, wire guided storage systems, automatic stackers, and automatic receiving, storage and retrieval systems. Mechanized materials handling equipment helps eliminate multiple manual operations and provides improved response and simplified parts control, inventory, and maintenance. As a result of this improved productivity, the average system pays for itself in less than four years.

A significant aspect of the program includes a wide range of industrial plant equipment such as welders, lathes, grinders and drilling machines to support all our non-depot maintenance industrial funded activities. Although past investments have improved support, much of this equipment is still over 20 years old. Rapid deterioration, limited parts availability, and costly maintenance remain concerns. Replacement of this antiquated equipment will ensure prompt manufacture/repair of aircraft parts, greatly improving readiness and sustainability by reducing aircraft downtime and increasing aircraft availability.

Electrical Equipment

The Electrical Equipment category includes mobile electric power generators ranging from 5KW to 750KW, and wheel kits. Not only is this equipment used on a day-to-day basis, but is also required by units with mobility commitments for use in forward operating theaters. A major item requested is the lightweight engine generator required to support communications systems such as TRI-TAC, satellite terminals and the modular control elements of the Tactical Air Control Systems. Without generators, these systems will not be deployable.

Base Support Equipment

The Base Support Equipment category is a broad category that includes disparate projects such as medical and dental investment equipment, cargo pallets and nets, photographic equipment, mobility equipment, base procured equipment, Air Base Operability measures, productivity programs, Wartime Host Nation Support, and spare parts. I will discuss some of the larger dollar programs.

The Medical and Dental Equipment portion supports hospitals, laboratories, clinics, and training facilities. Funds provide equipment which supports the global aeromedical evacuation system for which USAF is the DoD single manager. Equipment bought through this program provides sophisticated life saving and diagnostic services which are technologically advanced and compatible with those found in the civilian sector. Initial outfitting of new, expanded or altered health facilities is also included.

A critical portion of the medical and dental program is for War Reserve Materiel (WRM) in direct support of Air Force readiness and contingency requirements. WRM equipment provides medical support necessary to care for individuals injured in combat so they can return to their wartime duties as quickly as possible, and to reduce the mortality rate. Funding is also requested for the medical version of the Survivable Collective Protection System procured under the Chemical/Biological Defense P-1 line.

Additionally, modernization and replacement of medical, dental, physiological training, and real property installation equipment inventories is part of our request. New technologies have produced equipment which enables significant improvements in diagnosis and treatment. This equipment is essential to provide quality of care for our beneficiary population which meets accepted standards of care offered in civilian medical practice. Safety standards and related laws have also significantly affected the requirements for, and cost of, replacement and modernization equipment.

Another segment of the Base Support Equipment category is Air Base Operability. This program funds equipment to enhance the survivability, recovery and operation of air bases in a combat environment. We are seeking funding for F-15 and F-16 Aircraft Decoys wartime use. Aircraft Decoys are full scale models of the aircraft employed to confuse opposing forces with regard to the magnitude and location of operational tactical aircraft resources.

Mobility Equipment, required for forces operating at austere airfields continues. The program is designed for worldwide force projection. For the most part, this request completes the buyout of equipment needed.

Funding for Wartime Host Nation Support is again requested. Funds provide a variety of equipment needed for activation of German support for airfield damage repair at eight main operating bases, 11 security battalions and seven security platoons.

The final program in Base Support is Base Procured Equipment. Funding is based on a unit cost threshold of $15,000. This essential program provides the local commanders the funding avenue flexibility to procure their most critical non-centrally managed equipment items costing $15,000 or more. Typical items bought are aircraft test equipment, printing and graphics equipment, corrosion control equipment, dining hall support for food preparation, and specialized laboratory equipment.

We also have requirements for vital initial and replenishment spares parts for all the equipment procured in this budget activity.

Special Projects

Most of the projects in this final category of Other Base Maintenance and Support Equipment are classified. They generally deal with intelligence, surveillance, and countermeasures. The unclassified portion is requested for Industrial Preparedness. This budget line acknowledges the industrial bases as a vital element in national deterrence. It is a part of a larger Air Force industrial revitalization effort called the Industrial Base Program which is designed to ensure the civilian industry is capable of supplying reliable, cost-effective systems and components to the operational commanders in peacetime and national emergencies.

Mr. Chairman, this concludes my prepared statement. I will be pleased to entertain any questions.

PEACEKEEPER IN MINUTEMAN SILOS

Mr. **Murtha**. We notice that the Secretary of Defense has made a tentative decision on the Peacekeeper and the MX, at least we see in the paper that he favors the same plan I do. I have always felt the small missile was too expensive.

Full operational capability of the Peacekeeper program was declared by the Air Force in December 1988. However, although there were 50 missiles in silos, only ——— on alert, is that correct?

Mr. **Welch**. Yes, sir.

Q–10 MISSILES

Mr. **Murtha**. Would you explain the incident which occurred last June which led to the ——— and the corrective actions taken since then?

Mr. **Welch**. The Q–10 missile incident has been discussed in detail. The skirt at the bottom of the first stage sets upon a stool and the missile carries its load down through that skirt and sets on it as a preparation for launch. There had been some settling of the missile; in other words, it had slipped down into the cannister a little bit.

On investigation, it was decided we needed to take that missile out of the hole. We have been investigating a problem with the parting plane or the plane where you put these multiple parts together of a composite structure.

Even today, we are continuing to investigate exactly why that missile did exactly what it did. We have some hopes here in the very near future. We have got several different investigation teams of the best composite experts in the world trying to see if that was a one-of-a-kind type of incident.

In looking over all of the other first stages—when I say "looking over," the way that one looks at these vehicles is with a set of X-rays that are taken around the periphery of the skirt. There has been a judgment that ——— have not been able to duplicate the settling failure in any other missile.

We are continuing to do some tests at Morton Thiokol. I talked with the people at the Ballistic Systems Division within the past week and they believe we may find something in the process control, as they go back through the paperwork.

To illustrate, when you bond these materials together, any moisture that gets into that bond line—when I way "moisture," it would be if somebody had wiped their hand across their forehead and put it down on that—it has the potential to create voids. We cannot find instances of that happening. We are continuing with our process. ———. We feel very confident, though, that we know when this is happening. The missile crew could tell by virtue of getting a warning light or an anomaly light. This occurred when you get a cooling line going into the guidance system. It is very precisely aligned so if it even begins to slip a slight bit, you get a warning light.

So we have some feeling of confidence if it were to happen again, we would know about it right away.

They have also marked the missiles in the hole so that as they go out to do any maintenance work, they can inspect it. We believe we have a one-of-a-kind situation here.

The CINC is being rightfully very cautious that any other missiles that show some question are watched specifically.

I would hope that within the month we could come and tell you that we have a specific answer.

Mr. **Murtha**. The fiscal year 1990 budget request includes a total of $1,129,700,000 for Peacekeeper in Minuteman silos. How much of the total is not needed if Congress does not want to keep the option to buy 50 more operational missiles?

Mr. **Welch**. The funding breakout for an option for the second 50 for fiscal year 1990 is $471 million, made up of $210 million of initial spares, $61 million of logistics support and $200 million for reentry systems.

In fiscal year 1991, the number for that option is $378 million, made up of $150 million for spares, $26 million for logistics support and $202 million for reentry systems. The very minimum of the fiscal year 1990, $471 million, would be at least $200 million, and we believe that we can apply some of the remainder. So I would say a minimum of $200 million.

Mr. **Murtha**. A recent GAO report indicates the Air Force has changed its MX operational test profile. Instead of needing eight missiles per year, it will only use three.

What does that mean as far as budget impact?

Mr. **Welch**. We have been limited in terms of missiles to a buy of 12 per year so we have been modifying our test program in line with the number of missiles that we have and that has been spread over a period of time.

As you are aware, we are 18 successful for 18. We are analyzing the test program. We have bought that hardware. If it is not needed, we propose at the end of the line to make the appropriate adjustment.

So I don't think it would make any difference.

Mr. **Murtha**. What about the inertial measurement units you had a problem with; is that straightened out?

Mr. **Welch**. If you recall, we have a backup source. Rockwell Autonetics is coming on-line and made their first deliveries in the early part of April. We have an Air Force repair operation at Newark AFS, Ohio.

The biggest problem that remains is that of flow time; in other words, moving back and forth from silos when we find a failure. In terms of supporting the full operational capability since last December, we believe we have that in hand and we are continuing to improve.

What we are doing is essentially managing parts rather than systems to make sure we have begun supply and that these repairs can take place.

We are working reliability improvement. We believe it is coming along the maturity curve as expected, but because we have been managing these systems looking towards the full operational capability, we have some excursions as we turn them off and on. With the exception of the small so-called SFIR, which is a common item to Minuteman and Peacekeeper, we believe the maturity is following along the curve.

On the SFIR, we have made some changes. Today, even with a lower reliability, you probably would not get more than one failure a year.

As we make a change, it takes us quite a while to see if that change is an improvement.

C-17 AIRCRAFT

Mr. MURTHA. We visited McDonnell Douglas on the C-17, and we talked to the Air Force representative there, a Brigadier General. They were concerned there was an adversarial relationship between the companies and the Air Force itself, and that part of this has been brought about by some of the reforms that Congress has passed over the years and of course reinstituted by the Defense Department.

Does that cause you any problem? Do you get complaints from the field that you have an adversarial relationship which is hindering either the development or the refinement of these systems at all?

Mr. WELCH. The biggest single item we have with the field is in the area of multiple audits. That is the constant complaint that you hear from contractors. Now, the Department is working with the Inspector General and the Defense Contract Audit Agency to try to get some coordination. I think there has been some improvement this past year. I would say that the single complaint item is the one of oversight.

PLANT VISITS

Mr. MURTHA. When you say "audit," you actually mean visits to the plants. They call them audits, but they are really visits to the plants.

We had a meeting with Derek Vander Schaaf, the Department of Defense Deputy Inspector General. Mr. McDade and I talked to him at some length. He felt there were too many people visiting the plants. He says the auditors are a small percentage of the people who are visiting, and he thinks that we ought to see if we can't coordinate the visits. You are trying to do that. In other words, you are trying to reduce the number of visits to these plants without hampering the efficiency of your organization?

Mr. WELCH. It is not our choice to make. We are trying to ensure each agency is aware of what the other has done recently, so they can use the same material and don't impose themselves on site.

Mr. MURTHA. Who coordinates it? Everybody says it is somebody else's problem. It is astounding the number of visits that are made to these plants.

Mr. WELCH. We can coordinate the Air Force Audit Agency activity and the Air Force IG activity, and they are working very well together. We can only point out to the DCAA, IG, GAO or others things that have been done and make them aware of material that is available. But the only audits that we can control, in the sense of making sure they are coordinated, are our own IG and our own AA.

Mr. **Murtha**. He said in one plant they sent 40 people in at one time and they spent a week. This is just additional personnel.

We want to make sure we have oversight. But I am suggesting we coordinate it more carefully. I don't know who does that but it seems like everybody tells us that somebody else is causing the problem.

Mr. **Welch**. Well, I have had only a brief conversation with Derek Vander Schaaf on it. As I hear it from him, he was not saying that we are a cause of the problem; it is a problem of coordinating all of the people involved.

Mr. **Murtha**. Yes.

Mr. **Welch**. We meet and coordinate the Air Force Audit Agency and the Air Force IG. The IG and the Audit Agency then meet with their counterparts.

I don't know how to coordinate it above the Air Force. Very honestly, in most instances we are told that we should remove ourselves from that process, that it is interfering with the independence of the other audit agencies.

Mr. **Murtha**. Would you say it is a Defense Department function to coordinate all the auditing? When I say "auditing," I mean the plant visits?

Mr. **Welch**. It would have to be at the Defense Department level, yes, sir.

Mr. **Murtha**. Mr. McDade.

PEACEKEEPER RAIL GARRISON

Mr. **McDade**. Thank you, Mr. Chairman.

Mr. Secretary, there have been a lot of apparent convolutions in the price of the Peacekeeper Rail Garrison system. The December 31, 1988, Selected Acquisition Report reveals a current total acquisition cost for the rail garrison program, excluding the cost of the missiles, of $6.8 billion. The comparable figure in the 1987 SAR was $8.5 billion.

According to the SAR, the change is the "refinement of estimate as a result of updated program office estimate." This is in addition to a $650 million downward "estimate refinement" reflected in the December, 1987, SAR from the earlier estimate of $9.1 billion.

I don't need to tell you this will be a continuing issue as we go through the process, particularly in view of the Secretary's most recent announcement this morning about what his intentions are. Skeptics will indicate that those figures aren't really accurate, that you are really trying to gin up an estimate that will justify a decision you want to make.

What specific documentation do you have that will show to the Congress that these are hard figures, they are not just fuzzy estimates to support a position that may be taken by the Department?

Mr. **Welch**. Mr. McDade, I would comment that I also read the newspaper this morning, and I know of no decision that has been made in that area.

Mr. **McDade**. Let's talk about the cost figures.

Mr. **Welch**. We tried to go through——

Mr. McDade. A lot of people will look at these numbers with a great deal of skepticism. A lot of people say that you are just pushing the numbers around and don't have justification. I am giving you the floor to justify the drop from $9 billion all the way down to $6.8 billion and tell us what the hard documentation is that supports that lowering of the cost estimate.

Mr. Welch. It is very difficult to capture a program in the SAR document. The SAR is a complex document that was meant to be responsive to a large number of people.

I know we have proposed to folks over here it should be modernized to make more information available to you.

The answer to your second question is, each year, based upon the progress that is made and the things we learn, we in fact reprice those programs. We review them with an independent cost assessment within the Air Force, and then the Office of the Secretary of Defense does their own independent cost analysis. So there is updated content within each one.

I am not prepared to address the specifics from one year to another, but I certainly will for the record. It is content and it is the result of having run actual competitions where we have the contractual results. The numbers that we gave to you for rebasing this year we believe are accurate and correct, and would stand review.

[Additional information follows:]

It is always a pleasure to report cost reductions. The Peacekeeper Rail Garrison program costs have been reduced from the 1986 Selected Acquisition Report level of $9.1 billion to the 1988 Selected Acquisition Report level of $6.8 billion due to the following reasons:

RDT&E

1987, −655.3 million, savings from competition, refinement of program office estimates and congressional reductions.

1988, −21.0 million, savings from favorable contract negotiations and congressional reductions.

PROCUREMENT

1988, −1,475.6 million, savings from refinement of program office estimates. Without increasing risk, the program office eliminated 50% of test related rail equipment due to innovative restoration techniques, dual usage, and decreased redundancy. The program office also used actual cost quotes versus the parametric costing used on earlier estimates.

MILCON

1988, −128.1 million, savings from revised estimates due to likely base selections and revised program office estimates.

Mr. Welch. We also must be sure of our ground rules. In discussions we have had with this Committee this year, we have had varying IOCs for the Peacekeeper Rail Garrison; and we have had varying IOCs that are potential for the small ICBM.

The cost of the second 50 additional rail garrison missiles is $8.8 billion, and the rebasing of Rail Garrison missiles from the hole to the railway cars may be an explanation for your number. But I would have to research that.

Mr. McDade. The SAR says excluding the cost of the missiles, you come out with a number of $6.8 billion. Is that the number that you people think is the hard number?

Mr. **Welch**. $5.4 billion in 1988 dollars is the number that we have.

Mr. **McDade**. Excluding the missiles?

Mr. **Welch**. Excluding the missiles.

Mr. **McDade**. If skeptics look at it, they are going to say two years ago you said it was $9.1 billion.

Mr. **Welch**. I would have to go back and look to see what was in the $9.1 billion. Certainly I am not being evasive, but every time the question is asked, the ground rules are changed dramatically. The ground rules may be amended as the SAR report progresses from the people who make it to the people who release it. It is an excruciating process of traceability.

Mr. **McDade**. It is a constantly changing estimate from your point of view?

Mr. **Welch**. As a function of time. I believe the SAR that you have now is the one that closed out on 31 December last year.

Mr. **McDade**. That is correct.

Mr. **Welch**. That probably is, three months old data.

Mr. **McDade**. Let's discuss, because we need to get a figure here. Assuming that we will again have a controversial area this year, we are going to have to get some very hard numbers on these cost figures.

Basically, if there is any credence in the report in the morning paper, it was a cost factor that has driven Secretary Cheney as it drove Secretary Carlucci with respect to the Midgetman, it was a cost problem in trying to decide what to do.

In order to have a bench mark on this program, we are going to have to have a very, very hard number. Give us hard data on what the cost of the current program that the Secretary is going to recommend. We need to get real strong figures because there are going to be a lot of skeptics who say you are just pulling down the cost of the rail garrison program because the argument about the cost of the Midgetman, et cetera—so we need to get from the Air Force and specifically from you, the very hard data and the most current estimate you can give us. I don't want it to be really the kind of a thing that is going to be floating back and forth.

This budget is going to be released on Monday, isn't it?

Mr. **Welch**. They are shooting for very soon.

Mr. **McDade**. We need to get the figure. At some point, we are going to be defending this bill on the floor of the House.

Mr. **Welch**. When the Secretary of Defense and the President make a decision on the program, I believe we can come over and show you the traceability to the testimony that the Secretary and the Chief of Staff had earlier this year and bring you completely up to date.

I would end by saying I am not sure I can ever resolve how you relate the SAR to the real world.

Mr. **McDade**. You understand our problem and we understand yours, and if we work together, we can work it out.

The fiscal year 1990 budget contains the first procurement funding specifically requested for the Peacekeeper Rail Garrison program. A total of $222.6 million, including $59 million for initial spares, is included.

Do those initial spares represent the same items that they are going to have long-lead-time funding, the same dollars?

Mr. **WELCH**. We would have to look into the schedule, but the Rail Garrison initial spares are in line with the spares one would buy at this stage of a program for the activity.

Mr. **MCDADE**. What kind of comparable spares would you buy at this time or later on? What types of items are you talking about?

Mr. **WELCH**. For the Peacekeepers that go in the Rail Garrison, elements of the reentry system, and typical logistics support activity. They were the numbers that I just read off to the Chairman.

Mr. **MCDADE**. Put them in the record for us.

[The information follows:]

INITIAL SPARES—FY 1990 PROCUREMENT

Mechanical subsystems: launcher erector, environmental control system, stabilization subsystem, launch tube, launch support group, launch support activator, launch eject gas generator, launch seal, rail garrison unique transportation and handling support equipment, trucks.

Ground electrical power: electronic surge arrestor, power panels, diesel generator, equipment racks, cable set, distribution box, safety control switch, secure code device, AC/DC converter, DC/AC inverter.

Physical security subsystems: mobile map display, fiber optics interface, fiber optics gateway converter, junction box, local map display, lighting controls, security intercom.

Launch control equipment: multifunctional display set, commanders console, communication control panel, keyboard, printer, launch control console controller, bulk storage device, tempest filter, crypto devices, code retain power supply, AFSATCOM system printer/antenna cables.

MINUTEMAN MISSILES

Mr. **MCDADE**. Let's talk about the Minuteman. As we know, the majority of our international ballistic missile assets are the aging Minuteman II's and III's. The reliability of these missiles raises serious questions.

Recent flight test failures have identified age-related problems in guidance computers and motors. In addition, coding and other possible problems resulted in a situation at Malmstrom Air Force Base where several missiles which ostensibly were on alert could not have been fired if needed.

What was the precise cause of the problem at Malmstrom and what has been done to remedy it?

Mr. **WELCH**. If I understand the question right, there is a memory loader verifier problem that had come up at Malmstrom. We believe in the 1985 time period that we had as many as ——— which were improperly coded.

The investigation tells us there was a personnel error and not a reliability problem, and that those missiles were not launch capable during the time period 1985.

There have been two recodings on a yearly basis since that time period, and we have not found any reoccurrence of this problem. We have changed the check lists that go along with this to try to eliminate human error. We are also in the process of designing a new coding device, funded in the Minuteman reliability improvement program that should be available by 1994.

Mr. **McDade**. You say the problem at Malmstrom was human error?

Mr. **Welch**. Yes, sir. That is best we can judge as a result of our investigation.

Mr. **McDade**. What about the test flight failures? What happened there and how does this budget address the problem that occurred in Minuteman test flight failures?

Mr. **Welch**. Let me go back and try to talk in a broader perspective. The Minuteman II and Minuteman III are now coming into the 25-plus-year age group and expected to go well beyond that. We have been going on for some time now with a series of major modifications, an accuracy and reliability supportability program for the Minuteman II, guidance system upgrades for the Minuteman II, motor remanufacture—that is where we will take about 150 stages and we are remanufacturing the third state. That is washing out the propellant which is aging, and replacing this. A program that has been under way for some years is a Minuteman II motor program and we are showing IOCs for the Minuteman III improvements that started a year or so ago, and that will run through the 1995 time period.

As an example, the accuracy and reliability improvements cost about $300 million, and we believe we are seeing the results of those. The guidance system upgrades that will have an IOC in 1993 cost about $850 million. The motor remanufacture will be complete in 1996. We are looking at about $300 million.

The same type of program is being applied to the Minuteman III. The guidance improvement there has been going on quite a bit longer. We are looking to put about $170 million into that and that is software and hardware improvements to improve the accuracy and the confidence of the MK-12 and the MK-12A. We have changed the nose tips, for instance, the carbon nose tip replaced the carbon phenolic nose tips to correct flight degradation. When these things are re-entering the atmosphere, you can get trubulence leading to coning and some inaccuracies. We have spent money on that program for the Minuteman III.

Guidance upgrades to improve the accuracy of the MK-12, again, in Minuteman III, stage 3, remanufacture, and it goes on and on. I can submit a complete set for the record. But we have been addressing each one of these as we go along because we would expect to need to keep these on alert through the remaining part of this century.

Mr. **McDade**. So you are not concerned that there might be any mismatch between requirements and budgeted funds for Minuteman reliability in the out-years?

Mr. **Welch**. The program that we have now matches the reliability improvements and in our opinion, testing out would permit the people to recognize the SIOP kinds—we don't have all of the funding that we would like. In fact, I think in the missile funding item, I think that we are showing in 1990, in 1991 and 1992 and 1993, that we have got a pretty good match.

Mr. **McDade**. That same chart, though, shows that you get way out to 1994 when you really try to get well in the program and you short-change 1992–93 some, and that is really what the concern is about.

Mr. **Welch.** I can tell you that we intend to make these things match. The building we have right now I think is not an unresonable match as we go along.

Mr. **McDade.** If you have to make changes in the 1992 POM cycle, you will make them?

Mr. **Welch.** Yes, sir. The priority goes to making the things we have keep working well.

Mr. **McDade.** Thank you.

Mr. **Murtha.** Mr. Dicks.

DEFENSE SCIENCE BOARD RECOMMENDATIONS ON MX RAIL GARRISON

Mr. **Dicks.** Press reports indicate that the Defense Science Board has endorsed Rail Garrison MX based on keeping at least some of the missiles on continuous patrol.

The Los Angeles Times reported on April 13 that:

> In concluding that some part of the missile force should be on the tracks at all times, the Defense Science Board tacitly acknowledged that even during periods of international crisis, U.S. leaders would be hesitant to disperse the trains for fear that doing so would further escalate tensions. "The essential thing is to get people to believe that you haven't locked the missile trains up and thrown the key away," said one panel member who asked not to be identified.
>
> General Russell Daugherty, a panel member, is quoted as saying, "Putting the MX missile on a train and leaving them in their garrisons is no better than putting them in Minuteman silos, if you have a mobile system, then you should exercise it in the mobile mode a lot. If you don't think it is necessary to move it around, then you don't think you need it."

Does the Air Force support the Defense Science Board recommendation?

Mr. **Welch.** I think it is taken in parts. The Rail Garrison is—Board is not complete. That is a draft, to the best I am able to tell, that is being quoted.

What I have seen so far of the Defense——

Mr. **Dicks.** Do you agree with the draft?

Mr. **Welch.** I think it is taken in parts. The rail garrison is—when in garrison, is capable, one, of being fired immediately from there. Its ability to go from garrison on to the rails is simply the subject of a decision by someone, not any capability that is inherent or not inherent in the system.

So I think what is being talked about is what people will do or may do or can do, which is far beyond anything the Defense Science Board would look——

Mr. **Dicks.** The Board says the fact that you have to make a decision undermines the credibility of the system?

Mr. **Welch.** There is no system that doesn't require decisions, so certainly the Air Force cannot agree with anything that says we are going to have any activity without some kind of a decision.

I think the key point is that we have good past experience that says you can generate a force much as the bombers were generated, et cetera, without creating an instability or destabilizing. There is no reason that you can't at a decision move those rail cars out of garrison and have caused no more of a situation than you would in any other activity.

Mr. **Dicks.** So basically you reject the conclusions of the Defense Science Board that they have to be out on rails 24 hours a day?

Mr. **Welch.** Absolutely.

Mr. Dicks. Just for the worst-case scenario, if so, what impact would this have on the cost of the rail garrison program? It would cost more to keep on the rails, wouldn't it?

Mr. Welch. They are manned to go out on the rails. If you wanted to keep them on the rails 100 percent of the time, there would be certain O&S support that would have to be increased.

Mr. Dicks. Could you give us an estimate?

Mr. Welch. For zero versus 100 percent?

Mr. Dicks. Fine.

[The information follows:]

The annual O&S cost would increase by $400 million to $600 million a year in fiscal year 1989 dollars. This increase is virtually all railroad operating cost. Since we have not negotiated service agreements with the various railroads, our estimate is shown as a range estimate as opposed to a point estimate. Our estimate assumes the entire fleet of trains is constantly away from government facilities. If the trains were away from bases less than 100 percent of the time, there would be a lesser increase in O&S. To reiterate, we see absolutely no reason, based on today's threat and the projected threats, to pay the increased O&S cost associated with a constantly mobile system.

SECURITY ON RAIL SYSTEM

Mr. Dicks. What additional security measures are planned and how would they be structured if you were out on the rails?

Mr. Welch. Well, to say again, the system is planned to be able to go out on the rails. The security system comes with it. We have been continuing studies both our own and various red team studies, and we believe that the program as structured is adequate to have it go out on the rails today.

Mr. Dicks. What impact would this have on EIS requirements and chances of meeting the stated IOC if now you have to go back and look at a continuous on-rail option?

Mr. Welch. The EIS statement is on the street right now.

Mr. Dicks. You would have to redo that. There is no question in my mind, unless you have got this in is an option.

Mr. Welch. The EIS—I will have to check—essentially includes the ability to go on the rails at a time determined by the National Command Authority or the CINC. So I think it is a matter of degree.

The EIS has to do with where it is going to be. I am not sure I would agree that it has to be redone.

Mr. Dicks. I think you will find if you are on continuous patrol on the rails, that is different than being called out only in emergency. I think you are going to have different community relations problems.

As somebody who has spent quite a bit of time on the MX system when we were going to go with MPS, you are going to get a lot different reaction from the public on this.

Mr. Welch. I would have to review it. Certainly the idea of having it 100 percent of the time on the rails was not in the original EIS but at the same time, I have to say I know of no need to keep it 100 percent of the time on the rails. So it is kind of speculative in the sense of trying to respond to a draft DRB report that I think is on——

Mr. Dicks. We are making the assumption that this may go somewhere, if this becomes the administration's position, that this is what they are going to present to the Congress, that these missiles will be on continuous patrol, then I think you are going to have to go back and relook at a lot of things to decide it.

Mr. **Welch.** No question.

Mr. **Dicks.** The fact that we don't have a decision yet does affect us. If we did get a decision, I think we will have to look at some of these issues including the EIS and the time of the IOC.

When is the IOC on Rail Garrison?

Mr. **Welch.** In 1992 in the present plan. I would agree with you, we would have to go back and review all this if a decision was made to spend 100 percent of the time on the rails.

SMALL ICBM

Mr. **Dicks.** Or even part of the force.

Let's switch to cost. We have a had a lot of trouble getting the cost numbers pinned down. But the one thing that we do know is the cost calculations for the Small ICBM program have declined steadily.

However, press reports and to some extent debate in the Congress still reflect earlier, higher cost estimates. What is the current acquisition cost for a force of 500 single warhead small missiles? We think the number is $26.5 billion, and that $3 billion of that has already been provided.

Mr. **Welch.** You say 500 Small ICBMs?

Mr. **Dicks.** Yes.

Mr. **Welch.** In fiscal year 1989 dollars, 500 Small ICBMs on Minuteman sites is $24.8 billion. What was the number that you had there?

Mr. **Dicks.** $26.5 billion. I thought it was less than that; $24.8 billion for 500.

Mr. **Welch.** In 1989 dollars.

Mr. **Dicks.** How much of that—is that the complete—is that cost to complete?

Mr. **Welch.** To complete.

Mr. **Dicks.** So some money has already been spent.

What is the acquisition cost estimate for a force of 300 such missiles?

Mr. **Welch.** In fiscal year 1989 dollars, to deploy 300 Small ICBMs on Minuteman sites would be $17.9 billion.

Mr. **Dicks.** What is the acquisition cost estimates for 250 missiles equipped with two warheads each?

Mr. **Welch.** We are trying to get our years squared away here. Just a moment. I believe $15.6 billion in fiscal year 1988 dollars is 250 missiles.

Mr. **Dicks.** With two warheads?

Mr. **Welch.** With two warheads at Minuteman sites.

Mr. **Dicks.** What factors have been involved in these cost reductions?

Mr. **Welch.** On the Small ICBM, the major cost—the changes have been really change in scope, the number of test missiles, a recognition of the contracts that have actually been negotiated and things like that.

I can submit you a complete set for the record. Take the traceability for you from the higher numbers to the lower numbers if you would like.

[The information follows:]

The following table shows the major cost reduction area from the baseline program.

Cost History

[500 units at 3 Minuteman bases; billions of fiscal year 1988 dollars]

COST REDUCTIONS

JANUARY 1988, RESTRUCTURE

(Billions of dollars)

3600 (RDT&E):	
Technical base management system	0.1
Alternative inertial navigation systems decision	.8
General support	.2
Dual propulsion source	.2
Total	−1.3
3020 (production):	
Reduced engineering change orders	.6
Reduced ceiling	.4
Assembly and checkout spares, pubs	.3
Passive access denial system	.1
General support	.1
Reentry vehicle line open	.1
Post boost vehicle	.2
Total	−1.8

OCTOBER 1988 RESTRUCTURE

3600 (RDT&E):	
Reduced flight tests	.3
Use DT&E instrumented range safety system	.2
Less test units	.1
Less ground test missiles	.1
Revised estimates	.3
Reduced engineering change order	1.0
General support	.2
Second source	.1
Total	−2.3
3020 (production):	
Reduced aging and surveillance hardware	.1
Instrumented range safety system subsets	.1
Logistics support equipment	.4
Reduced engineering change orders	.5
Guidance and control tooling	.1
Reduced ceiling	.4
Total	−1.6

Mr. **MURTHA**. The time of the gentleman has expired.

The gentleman from Ohio.

AMRAAM TEST PROGRAM

Mr. **MILLER**. Thank you, Mr. Chairman.

Based on problems experienced in the AMRAAM test program last year, the Department of Defense decided not to proceed past low-rate initial procurement in Fiscal Year 1989. What has been the effect of this slippage on the Congressionally mandated $7 billion cost cap for 24,000 AMRAAMs?

General YATES. Well, you recall that each year we were authorized by Congressional language to adjust the cost cap based on Congressional actions, so over the years the cost cap had grown to $7.585 billion. The effect of the change, Mr. Miller, that you just mentioned is to make the cost cap grow two percent to $7.729 billion.

Mr. MILLER. Does this mean that DOD will have to seek relief from the cap at some later date or wind up buying fewer missiles?

General YATES. Yes, sir. We will seek relief from the cap.

Mr. MILLER. The Selected Acquisition Report on December 31, 1988, indicates a multiyear procurement strategy for AMRAAM commencing in 1994. What estimated savings will this provide in both dollars and percent?

General YATES. I am sorry, sir, I don't think——

Mr. MILLER. Would you furnish that for the record?

General YATES. Yes.

[The information follows:]

The multiyear procurement strategy will save an estimated $195.3 million or 6 percent over the four years (FY 1994–1997) of the multiyear procurement period. Details associated with this information are provided to Congress in back-up budget information titled "Multiyear Procurement, Justification of Estimates".

Mr. MILLER. Given the many AMRAAM producibility enhancement changes to be introduced, are you confident the AMRAAM Program will meet the stability of design and other multiyear procurement requirements?

General YATES. Yes, sir, we are. Changes have been put into the missile as a result of the flight test program. We are already starting to fire lot 1 missiles, which incorporate the corrections from the DT&E test programs. As a matter of fact, we fired one last week and it was a direct hit, and we fired it on a scenario that previously we had a miss on. So, in other words, we fixed the problem.

I think that the configuration on the missile, by the time we go to multiyear procurement, will be stable.

Mr. MILLER. Would you bring the Committee up to date on test activity within the last few months, giving special attention to live-fire testing and AMRAAM's ability to acquire small targets?

General YATES. Well, that is sort of two different questions. Let me recap what has happened.

First, we have had total launches in the program to date of 95. That is all kinds of AMRAAMs; some are separation vehicles that we shoot without targets, some are aircraft integration tests, but we have shot 95 missiles. Seventy-six of those have been successful.

If you take just the ones that we have launched against targets, we have launched 80 missiles against live targets. We have had 59 successes, two no tests, and 17 failures. So our test success rate against targets is 59 out of 76 valid tests or 78 percent.

This far exceeds anything that we could do with any operational missile like an AIM-7, for instance. And this is the original test program. So we are extremely pleased with the progress of AMRAAM.

Mr. MILLER. Has the new fin design been flight tested yet?

General **Yates**. No, sir. The new fin design has not been flight tested.

Mr. **McDade**. Would you yield?

I was interested in your comments about the testing of the AMRAAM and its 78 percent success ratio exceeding that of the AIM-7, a mature program. What is the success ratio, for instance, on the AIM-7 and the other——

General **Yates**. I will have to give you that.

Mr. **McDade**. Take a look at your inventory of what you are using in surface-to-air, et cetera, put them down, give us the mature success ratio and send it up to us. Thank you, Clarence.

[The information follows:]

The AIM-7M is the only Air Force missile that approaches the AMRAAM in technical complexity and, as such, is the best missile to compare with the AMRAAM. The mature success ratio for the AIM-7M, based on Air Force Weapon System Evaluation Program firings over the last three years (1986–1988), is a ——— probability of success given a missile launch.

FISCAL YEAR 1990 OTHER PROCUREMENT BUDGET REQUEST

Mr. **Miller**. General Bracken, you mention under other procurement, the special purpose vehicles that are necessary, physical security systems, spares, weather information and the electronics to gather that weather information, even telephone exchanges.

General **Bracken**. Yes, sir.

Mr. **Miller**. With the bill that was approved on the House Floor yesterday that would delete 86 bases, would then the budget be lower because of the lack of bases and not necessarily have money in it to maintain those bases? Would we have less of everything to buy in an appreciable amount?

General **Bracken**. In capturing the cost of those base closures and the savings that will be achieved under that effort, we have developed those costs first with the base closure commission. For the refinement of those costs, to make sure we have a spot on numbers, we have captured the changes in all of the communications electronic areas that we will be able to take out of the inventory as a result of those closures, and we will adjust accordingly. The savings will be reflected in the out-years of the budget as those changes are made.

Of course, in the 1990–1991 column, we won't realize any of those changes right up front in terms of savings because it will be an investment. Of course that is part of the request we have, DOD wide, $500 million in each year to effect those changes in the characterization of our beddowns in the CONUS.

So in the out-years we will accrue those savings and decrement the requirements for any new systems that would be put on those bases as well as the savings that we could achieve by taking those assets and applying them against requirements in other locations.

BASE CLOSURES

Mr. **Miller**. Do you have a figure on closing bases—I don't think you have the overall figure, that is not your responsibility. You have responsibility for the Other Procurement items. But on those bases that are being closed, would that not release some of the equipment that is now used at those 86 bases and that material, equipment, could be shifted over where it is needed, and therefore the budget would be down some because you did not need to buy new equipment for a base that is still open?

General **Bracken**. That is a true statement. We only deal with the five Air Force bases, not the entire 86 DOD bases of them that we take care of in our account. We will capture those costs and reduce the requirement at other locations when the time comes.

As the law says, we don't start that action until January 1990, and actually those kinds of savings and adjustment won't occur until the 1992 or 1993 time frame on those particular bases.

In the case of those bases that are closing, for instance, one of the things that I cover in my account is the material handling equipment for warehouses. That is the centrally financed and managed piece of equipment that Air Force Logistics Command buys for warehouses. Two of the bases were scheduled for an upgrade of that equipment in their warehouses. We will not do that change in those warehouses and we will take those equipments or dollars and apply them against another warehouse at some other location that was at a lower priority before the bases closure action came to fruition.

LOW PRIORITY ITEMS

Mr. **Miller**. I would like to ask one question of all three of you. You know we are in a money crunch position, and we are talking about a Supplemental now, and then the 1990 budget, and to fall under Gramm-Rudman-Hollings, there will be reductions. There is no doubt about it.

Do you have low-priority items that you could mention to us that could be marked off if enough dollars were not there to purchase everything that you would like to purchase?

Mr. **Welch**. I notice everybody leans forward in their chair. We will have a budget over here that in fact meets the summit agreement. That is the best I can say, Mr. Miller. Just as soon as the decisions are made; but that will acknowledge all of the agreements that have been made up to and including last Friday, and in that you will obviously be able to see the prioritization by virtue of those things that are funded and those that are not. But that is still being worked.

Mr. **Miller**. Very good. Thank you.

AMRAAM MISSILE

Mr. **McDade**. Before we leave AMRAAM, there is a GAO study around that says that if a pilot drastically reduces air speed for a combat reason, that that has an impact on the internal wiring.

Do you know anything about that?

General **Yates**. I think what they are talking to is that on the forward fuselage stations on the F-15 only, if you are going from supersonic speed to subsonic speed, if you are at a higher G factor or making a turn, and if you are pulling the power back, the air spills out of those intake ducts and comes back under the fuselage and creates an extremely harsh vibration and the missiles are not holding up as well as we anticipated in that environment. So that is a problem that we have to solve. We have not solved it yet.

Mr. **McDade**. You have gotten it on your front burner though?

General **Yates**. Yes. It is the number-one item.

Mr. **Murtha**. Let me ask General Bracken a question; I see you have 3800 flying hours. What kinds of airplanes did you fly in, because most of them are too small for me to get into, and you're a pretty big guy.

General **Bracken**. Sir, I've been a fighter guy all along. I have flown the F-100, the F-105, the F-111, the F-4.

General **Yates**. He gets smaller when he gets into the cockpit.

Mr. **Murtha**. Mr. Livingston.

PEACEKEEPER RAIL GARRISON

Mr. **Livingston**. The Peacekeeper Rail Garrison, I know we have asked a lot of questions already, but I have some layman's concerns.

The Peacekeeper was originally devised to be a stationary missile in a silo, correct? It was built for that reason.

Mr. **Welch**. It was originally designed for the multiple protective shelters space track, basing mode. It would have been moved between those horizontal shelters by truck.

Mr. **Livingston**. Now the plan is to take it out of the silo, put it on a rail car and send it around to be safe and to be mobile and to fire it.

I have two concerns. First off, how do you know and how can we be reassured that as it is rolling around on the track, that it is not going to lose something and not work? How do we know that we have the software that will make it hit its destination when it was originally intended as a stationary missile?

Mr. **Welch**. I think that we can define the change in the environment from the vertical to the horizontal and in fact have included that in the test programs to date that are ongoing and in fact that will be part of the operational testing that is yet to go when we get the actual rail cars and we will run them on the rails and then fire them.

So we would go through an environmental qualification test and an operational test and evaluation in the environment which they will see. So we can't assure you until we have actually done it, but we believe the ability to predict that environment, we have run trains, we have been with the rail people and we have measured what we would expect to be the inputs to that support structure.

On the second one, we rented a train and it went from around Holloman Air Force Base up to Vandenberg and we put a guidance system car on the train and stopped periodically and made measurements as we went along. That illustrates the kind of testing that we are doing and we can't rule out that we may have some bench marks that we will want to put at various places as we go along. We do not think so.

The answer to your question is, we agree it is a good question and we have a test program we can show you and a development program for each of those and hopefully we will step-by-step build up the confidence level that we will retain the kind of accuracy that we have come to expect. In fact, I think it would be a good point I would like to make here in this time.

We have been told on occasion that the accuracy with respect to the Peacekeeper, the last shot that we had, we really were talking about the kind of accuracy that one would get on a ———. We are putting those RVs in a ——— with respect to the aim point.

Mr. Livingston. I know that it is a very accurate missile, but in other programs we have had some very serious problems with software development which have prolonged critical programs, not just a few months but many years, and we have got some of them out there in Cheyenne Mountain I think that you are aware of. So I think that there is a concern there.

I know we never know until we do it, but I want to alert you to the fact that we have some troubles with that. Just thinking, just envisioning that big monster on the rail track chugging along on the track gives me some pause.

Mr. Welch. Sir, we have also been working, as you know, with the Federal Railroad Administration. We are trying to recognize the actual condition of the rail bed and track.

MAGNA, UTAH FACILITY FIRE

Mr. Livingston. There was recently a catastrophic fire at a contractor facility where solid rocket motors are produced for expendable launch vehicles and DOD missile programs at Magna, Utah. What will be the impact of the loss of this facility on DOD programs in the near term, and how does the Department intend to recover from this accident?

Mr. Welch. I think that you are referring to the fire at Magna, Utah, on March 29th. This was at the Hercules solid motor production facility. It is a new facility. In fact, it was the first mix that we were making in there. It is a highly automated robotic type facility and therefore, no injuries. So the good news is that we did not have anyone hurt.

The facility is used to mix propellant for the Titan IV solid rocket motor upgrade, for the Delta II graphite epoxy motors or the lighter motors for the Delta II and the Navy Trident II. This is an 1,800-gallon mixer. It looks like the world's biggest mix master. It is the first one that we are trying.

The way this explosion went, it essentially lifted the roof of the facility off and then it smashed down. There is a lot of propellant underneath there and we are just now getting to the point of getting all of that roofing material away so we can get into it. We believe that we will have an understanding of what actually happened there soon, but we have not completed the action investigation.

Mr. Livingston. Was there any suggestion of sabotage?

Mr. Welch. We have no indication that there was any sabotage or whatever. I believe that if we don't find anything untoward, we should be able to come here within about a month and give you a report. Mid-May is our present time period for that.

The two programs that we are looking very closely at is the Titan IV—we do need two of these 1,800-gallon mixers to pour a Titan IV motor, and we believe that the motor will not now be able to be cast until January of 1990 and test fired in April of 1990. This reduces a margin that we had of about 18 months between first delivery and first launch, to about 11 to 12 months.

If we don't run into anything untoward, that still should be enough margin for Titan IV.

Mr. LIVINGSTON. So the current steel case motor for the Titan IV was scheduled to end production in 1991?

Mr. WELCH. No. We have CSD Titan IV solid rocket motors through flight 16. The original first flight for this new solid rocket motor update is flight 11. So we believe we have some margin of time there.

We believe we have only lost about six months out of what we were looking forward as a lead time.

Mr. LIVINGSTON. We have evidently several projects which all relate together with solid rocket motors.

Mr. WELCH. Right. The Delta II is the other one. So far, it looks like we would experience about a two- to three-month delay and we have some alternatives. They have 600-gallon mixers there. We would look at that alternative.

At the moment, unless we find something untoward, we believe we can handle the problem.

Mr. LIVINGSTON. Will this have any impact on the new filament-wound solid rocket motor for the type 4 launch vehicle called the SRMU?

Mr. WELCH. That was what I was addressing myself to on the schedule. We have lost about six months in terms of delivery margin, but we believe we have adequate time left. To put it in perspective, the previous solid rocket motor and the solid rocket motor upgrade is about a 25 percent improvement in what we believe is quite a better design in terms of—if you remember the difficulties the Challenger had with the various segments of the rocket, I think we are going from about seven to a three-segment rocket. We are trying to get a better design and improved performance.

Mr. LIVINGSTON. Do you have any reason to believe that the explosion or fire will diminish our ability to rely on this type of fuel and this type of rocket?

Mr. WELCH. We gave no indication that we would have to move away from this kind of activity. I think what it said is that we have got some process learning at the front end as we take all the people out of the system.

Mr. LIVINGSTON. So as I understand it, you have really now focused on just one single type of motor, then in one facility. What if you have another fire?

Mr. WELCH. Two things. We have gone from the basic solid rocket motor that was made by Chemical System Division of United Technology to Hercules now.

As far as fires were concerned, they will end up with three buildings out there that can handle mixers of this size. So we believe that we have adequate protection with respect to that. But to try to address that, the Air Force and we are working with Martin Marietta doing an estimate of costs to see what would happen if we competed and qualified another source for the solid rocket motor upgrade, and we will be finished with the study in June of this year. So we want to make sure we are not overlooking something there.

Mr. **Livingston.** That might be expensive, but it might be advantageous especially when we consider what happened with the shuttle. We put all our eggs in one basket and were without a vehicle for two-and-a-half years.

Mr. **Welch.** The Chemical Systems Division will maintain production of these segments in support of the Titan IV and the commercial activity, so we are looking into the primary source today that will be replaced.

We believe they are going to continue production in support of the commercial Titans and that is part of the study we are doing.

Mr. **Murtha.** Are there any other questions? Mr. McDade.

TACIT RAINBOW

Mr. **McDade.** Let me get into one area, Mr. Chairman. Let me talk to you about the Tacit Rainbow program.

It looks like there are still a lot of difficulties in this program. In fact, the engine lost power in a test flight and crashed into a mountain. It looks like you are set back several months in what was a very ambitious test program.

The first question is, with today's budget squeeze, why isn't this troubled program a candidate for termination?

General **Yates.** Well, Mr. McDade, in the first place, the Tacit Rainbow offers something to us that nothing else that we have down on the books offers. Now, for instance, HARM is a great missile, but HARM, when the emitter comes up and radiates, if he stays on line, then we can kill him. The point is, we don't have a way, for instance, once the HARM shooter is out of range or past that, of getting back to that site.

SEEK SPINNER

Mr. **McDade.** We used to hear about something called Seek Spinner.

General **Yates.** Yes, sir.

Mr. **McDade.** Doesn't that do pretty much what this one does?

General **Yates.** That is something we killed, plus it is ground launched.

TACIT RAINBOW COSTS

Mr. **McDade.** You were supposed to get ——— missiles at a unit cost of ———. The Air Force now says it will get ——— missiles at a cost of over ——— dollars. Are those figures accurate?

General **Yates.** The SAR estimates——

Mr. **McDade.** If you are listening to what Secretary Welch said——

General **Yates.** Is that the source of the data?

Mr. **McDade.** That is last year's budget. Does the budget float like the SARs or does anything have meaning?

General **Yates.** The budget has meaning. ——— missiles this year and the last year ———.

Mr. **McDade.** That was supposed to be at ———.

General **Yates.** Flyaway cost was about that ——— last year.

Mr. **McDade.** This year you are showing ——— at over ——— dollars.

General **Yates.** The same recurring flyaway cost would be ———. But the deal is now, when we start talking about—we start talking about a program where we have made dramatic changes from year to year, you are going to get some wild excursions in unit procurement or unit flyway costs.

The main reasons, are, first, when you cut the quantities back as we cut the quantities back in the current year—

Mr. McDade. Excuse me. It doesn't look that way to me. This year the total program cost is ——— is what you are showing in the requirements document, and last year there were only ———. You are much higher. You have changed the mix between Services too.

General Yates. When you are talking about the current year, I am saying you get anomalies that are not in the total. Let me tell you about that because that is an excellent point.

What happened from last year? If you take total program cost of the missile, it is ——— and from last year that is an increase of $7,000. So that is the only change from last year in this total program.

But if you go back, the thing you started on was year to year, the wild fluctuations then occur.

Mr. McDade. Because you have got a program that doesn't work, the test flight didn't work, your costs and requirements are gyrating. You are saying that that is normal because you have a high-priority program. You are going through the convolutions that you go through. Is that your response?

General Yates. No, sir. I am saying that the unit cost went up because, first, we are going to produce only ——— missiles, and the overhead cost——

Mr. McDade. Didn't you cut that back because you were having so many problems with the program?

General Yates. That is true.

Mr. McDade. The unit cost has more than doubled.

General Yates. From year-to-year, yes, that is true.

Mr. McDade. Make your case, will you; make it quickly because we don't want to miss the rationale.

General Yates. If you are satisfied, I am.

Mr. McDade. I am not satisfied.

General Yates. The reason is that the overhead costs are fixed. You have to spread the overhead costs over ——— missiles and since we didn't produce the ——— missiles last year, the first ——— missiles are on the very first part of the learning curve. So those are the missiles which are going to be costing maybe ——— dollars apiece. That is why the unit procurement costs doubled from year-to-year.

Mr. McDade. So you don't know what the costs are going to be, do you?

General Yates. We have not got it through the test program, and you are right——

Mr. McDade. What was the original estimate of the cost of each missile?

General Yates. I don't think I have that with me.

Mr. McDade. You had an engine failure. What kind of engines do you have on the things? Is there something super special about the engine?

General YATES. No. It is a Williams engine; we have used it on other cruise missiles.

Mr. DICKS. Where are we in the test program? Why are we going into production when we have these kinds of problems in the test program?

General YATES. We are not going into production while we have these kinds of problems with the test program. We have shot a total of five missiles. There were four contractor development tests. Two of the missiles were successful, hit the target. Two were unsuccessful.

The reasons are primarily one was a high-reliability part that failed. It was just a random failure, and the other was a personnel failure. The current failure for some reason that we have not yet determined, we haven't had time yet to find out the cause. There was an errant signal to the engine to throttle back. So the engine throttled back and the missile lost power and crashed. That is something that we are concerned about, but it is not an insurmountable problem.

Mr. MCDADE. No recommendation for procurement money this year, is there?

General YATES. No. We do have procurement money this year for preproduction verification missiles. I'm sorry—there is no production dollars for fiscal year 1990.

Mr. MCDADE. Nothing in this budget that commits us to a production of this missile?

General YATES. No, sir, that is right. We procured ——— preproduction verification in 1989 but they are to be used in the test program.

Mr. MCDADE. Let me ask this question; it is a hard one. We have a contractor on a program and the contractor is having a lot of problems. Are you comfortable that this contractor is able to give this kind of a program, an important program if it will work, the kind of management that it needs to deliver the items? Are you comfortable with them the way it is?

Mr. WELCH. No, sir. We are continuing to work with them with respect to their activities at this division and other divisions.

We see plans in place and there are some improvements being made. We have had recent successes, but to date the performance has been disappointing and we are anticipating a continuing change to get to the level of design end quality that is necessary to meet these kinds of schedules and performance.

Mr. DICKS. What is the rest of the test program? What do we have to do before you are going to make a request for production? Last year on the advanced cruise missile, we stopped you from going into production. It sounds to me like—can we talk about that later?

Mr. WELCH. No.

Mr. DICKS. In general terms, we held you up last year and it sounds to me, based on our earlier hearing, that things got straightened out. It seems to me we might want to do the same thing with this program, say we are not going to go into production until you get things straightened out, and that might give you leverage with the contractor.

General YATES. We are going to shoot 25 missiles, and——

Mr. Dicks. Is this in 1990?

General Yates. The first one of the 25 was the one we just talked about where we had the engine shut down. So between now and the middle of fiscal year 1990, and that will occur before we make a decision to go into low-rate production. So we will have completed the 25 missile test program plus the four that we have already discussed, the contractor shot, so we will have 29 missiles shot before we make the decision.

Mr. Dicks. Okay. That sounds pretty good.

HAVE NAP

Mr. McDade. Let me ask one other question. HAVE NAP—you have what appears to the Committee to be just about a doubling of the cost of the missile. The 1989 unit was supposed to be around $700,000 and it looks like we are getting fewer missiles this year and it looks like $1.4 million. What is going on with this one?

General Yates. Sir, here are the numbers I have. I am not looking at your dollars there. Total program cost——

Mr. McDade. You are talking about fiscal year 1990?

General Yates. In then-year dollars. Total program costs are $1.2 million in then year. The difference between this year and last year——

Mr. McDade. $1.2 million per missile?

General Yates. $1.2 million total program cost.

Mr. McDade. Per missile?

General Yates. Yes, sir. That is the flyaway, which is $1.02 million plus the other procurement things, training, data spares. It is $181,000 if you amortize it over the total missile buy for $1.2 million. The change from last year is a decrease of $180,000 in that unit program cost.

Mr. McDade. Here are some figures we have. Last year's budget, 1989, eight missiles, $700,000 a copy. This year, six missiles, $1.4 million per copy, from $700,000 to $1.4 million for two fewer missiles.

General Yates. It was——

Mr. McDade. That is the budget justification, General. If you don't have it, give it to us for the record in detail.

[The information follows:]

The documents supporting the fiscal year 1989 Budget used the only cost information available at the time. The cost figures in these documents were based on Rough Order Magnitude (ROM) contractor estimates assuming a total buy of 300 missiles. The documents indicated a per unit cost of $750,000 for twelve misiles in fiscal year 1989. Subsequent contract negotiations have defined these original ROM estimates as hardware costs in fiscal year 1987 base-year (BY) dollars. The per unit cost has since been corrected to include flyaway and total program costs.

The following reflects the current average per unit hardware, flyaway and total program cost estimates:

Per Unit Cost:	*FY 1987 (BY) dollars*
Hardware	$790,000
(Total buy of 100 missiles)	
Flyaway	833,000
(Adds warranties, special tooling and engineering change orders)	
Total Program	905,000
(Adds technical data, contract logistic support and government expenses)	

[CLERK'S NOTE.—The revised 1989 budget figures indicate that the six missiles purchased in 1989 will cost $1.4 million each in current year dollars. The unit costs approximately doubled from the earlier documentation supplied by the Air Force supporting the 1989 program.]

Mr. MURTHA. Mr. Dicks.

SMALL INTERCONTINENTAL BALLISTIC MISSILE

Mr. DICKS. Let's go back to small missile. You were talking about cost reductions. Is there a potential for further cost reductions in this program?

Mr. WELCH. The obvious answer has to be yes, we continue to work that, but we believe that now that we have had an independent look from the Rand Corporation and we are also doing an independent cost estimate ourselves within the Air Force system, that we have a good number but we will continue to look.

It would be the number that we will give you as our best estimate right now, as we have before.

Mr. DICKS. Chief of Staff General Welch testified before this subcommittee that an additional $175 million is required in fiscal year 1989 to continue the Midgetman program.

What would that money be used to accomplish?

Mr. MURTHA. Also, Mr. Secretary, if you would answer, at what point does this program terminate, because obviously that is a key question with a supplemental which is already past due to the Committee.

Mr. WELCH. I think that we have to be a little careful and get our traceability here. I believe when the Chief testified, he was talking on the small missile that had an earlier IOC. He had been talking about $175 million in terms of added activity in 1989.

Mr. DICKS. He said to keep the program alive, he had to have $175 million. The Ballistic Missile Office said $125 million when I was out there.

Mr. WELCH. The question was, what added money would you put in fiscal year 1989 if you wanted to keep the program alive and achieve an IOC of fiscal year 1994?

Mr. DICKS. If you want to answer that, fine. That is not what I asked General Welch, but if that is what he was attempting to answer, fine.

Mr. WELCH. All activity associated with the missile is about $100 million of that and the basic development support was about $75 million. I would caution that we believe in the numbers that I gave you earlier in answering to the Small ICBM that with the IOC of 1995 that I quoted to you, that that number is probably workable within the total dollars that are involved with the small missile and Peacekeeper Rail Garrison in 1989.

That is why I am being very particular in answering, because in different testimony we have mixed up 1994 and 1995. I am saying "we," the Air Force.

Mr. **Dicks**. How much money would be required in fiscal year 1990 to continue the Small ICBM program to retain its previously planned IOC?

Mr. **Welch**. In fiscal year 1990, $438 million, and in 1991, $451 million.

Mr. **Dicks**. What level would be required to sustain a healthy contractor base—same level?

Mr. **Welch**. In fiscal year 1990, yes, sir.

RAIL GARRISON

Mr. **Dicks**. For the rail garrison MX, how much money, beyond the $120 million announced in the Cheney letter to Congress, is required to continue a healthy contractor base for fiscal year 1989?

Mr. **Welch**. That number we believe is consistent with keeping the schedule that we have right now and is consistent with——

Mr. **Dicks**. So of the $600 million, you only need $120 million of it for the rail garrison MX?

Mr. **Welch**. I said until the results of the national strategy review is in. That is good for about 60 days if you want a number to put in your head.

Mr. **Murtha**. $120 million is good for 60 days?

Mr. **Welch**. For 60 days on the rail garrison. We are spending at the rate of about $60 million per month. I believe he chose that number on the basis that they would be finished in about 60 days.

Mr. **Dicks**. Money has been obligated to date?

Mr. **Welch**. I believe the objective for obligation at this point was about $200 million. There is still $50 million that roughly has not been obligated.

Mr. **Dicks**. I am advised that $29 million of Small ICBM money was borrowed for the MX Rail Garrison program and that this money will be paid back as part of the $120 million being released this month for MX Rail Garrison. Is that accurate?

Mr. **Welch**. I don't know how to answer your question.

Mr. **Dicks**. Why don't you try to answer it accurately and honestly?

Mr. **Welch**. I don't know how you borrow within one line item.

Mr. **Dicks**. I don't know either.

We are told that this came out of the $250 million that we provided last year, that $29 million was borrowed for the Rail Garrison program. Is that accurate or not?

Mr. **Welch**. Sir, I don't know how you borrow within one line item. I am saying in terms of discussion, we have lived within the direction of the Congress in terms of what to allocate to the rail garrison and what to allocate to Small ICBM and what to reserve for the remainder of the year based on the President's decision.

Mr. **Dicks**. Are you saying there was no money borrowed from the Small ICBM program and used on the rail garrison MX program?

Mr. **Welch**. I am saying I don't know how to answer your question because it is one account. If I have one checking account and I write two checks on that account, how do I borrow from one number? I had one total and we had instructions on what not to exceed.

Mr. **Murtha**. The time of the gentleman has expired. Thank you, gentlemen. We will have other questions for the record.

The Committee will adjourn until Tuesday at 10:00 o'clock.

[Clerk's note.—Questions submitted by Mr. Hefner and the answers thereto follow:]

EQUIPMENT SURVIVABLE COLLECTIVE PROTECTION SYSTEM [SCPS]

Question. Provide for the record the total amounts appropriated by fiscal year together with the number of units for SCPS shelters.

Answer. Appropriated and currently programmed amounts and numbers of units are shown below. Differences between appropriated and current program levels are due to general reductions such as Gramm-Rudman-Hollings and minor reprogramming actions.

[Dollar amounts in millions]

	Appropriated		Current program	
	Amounts	Units	Amount	Units
Fiscal year:				
1985	$18.4	33	$18.4	33
1986	63.5	135	58.4	99
1987	64.4	119	56.0	55
1988	63.9	106	69.1	89
1989	38.1	51	38.9	51

Question. How many contract awards have been made to date?

Answer. There have been three contract awards to date. The first was to BMY Corp., York, PA, in September 1985 for 33 SCPS for bases in Germany. The second was an option award to BMY in December 1986 for 82 SCPS for bases in Germany. The third was to Price Bros. Co., Dayton, OH, in September 1988 for 26 SCPS for bases in Korea. The Price Bros. contract has two options, yet to be awarded, for an additional 26 SCPS for bases in Korea. The next planned contract awards are for bases in Japan in September 1989 and for bases in Germany in November 1989.

Question. In fiscal year 1986 Military Construction hearings it was reported that the average cost would be in the vicinity of $500,000 per unit. Explain why the unit cost has risen to $800,000 per unit in Europe?

Answer. The estimated cost increase is due to changes in the foreign currency exchange rates. According to existing country-to-country agreements, the Air Force contracts through the host countries' contracting agencies, hence payments must be made in the host countries' currency. This ties the estimated cost to the foreign currency exchange rates, where the US dollar's value has decreased significantly since 1985. The Air Force arrived at the $800,000 cost estimate by first converting the original $500,000 cost estimate to its foreign currency equivalent at the 1985 exchange rates. Then the Air Force determined the current US dollar cost estimate by converting the foreign currency cost estimate to US dollars using today's exchange rate. This assumes a more competitive procurement due to a greater number of competing contractors (eight versus two) will offset any labor or materiel cost increases.

Question. Why is the unit cost for the Pacific theater shelters less than for those in Europe?

Answer. The Air Force attributes the cost differential to two factors. First, the Air Force is able to contract directly in the Pacific theater versus indirect contracting through host countries in Europe. This means the SCPS cost for the Pacific theater is not tied to primary payments in foreign currency and the impact of foreign currency exchange rates as it is in Europe. (See answer to previous question.) Second, the cost of materiel (concrete shell) and labor (installation) is less in Korea than in Europe. Since these two items can account for 50 percent or more of the total SCPS cost, they have considerable impact on the total cost.

Question. How many units does the Air Force plan to procure with fiscal year 1990 requested funds?

Answer. The Air Force plans to procure 28 SCPS for bases in the United Kingdom with requested funds in the fiscal year 1990 budget revision.

Question. Has the Air Force attempted to seek NATO funding for the SCPS shelters?

Answer. The Air Force has not attempted to seek NATO funding for SCPS shelters. Traditionally, chemical defense equipage has been a national responsibility. Previous initiatives to seek NATO funding for chemical protection of key command, operations and maintenance facilities have not been successful. Accordingly, the Air Force has continued to request military construction funds to chemically protect the NATO-funded command, operations and maintenance facilities and procurement funds to procure rest and relief shelter systems (SCPS). The Air Force has participated in efforts to standardize rest and relief shelter system design and operating procedures within NATO.

Question. What has been the Air Force experience with shelters that have been installed in terms of maintaining their integrity against detonation of a bomb?

Answer. During the SCPS's development, the Air Force tested the integrity of an installed unit against the detonation of conventional explosives at various distances and for buried and surface bursts. The SCPS satisfied Air Force requirements by maintaining its integrity for detonations equivalent to threat weapons at 20 feet and beyond. There have been no further test detonations against installed SCPS, but the Air Force has every reason to believe such tests would produce similar results to those of the original test. Additionally, installed operational SCPS show no evidence of structural degradation which might affect their integrity against detonation.

Question. Has the Air Force ever considered or tested steel shelters as an alternative? If not, why not?

Answer. The Air Force has considered but not tested steel shelters as an alternative to the current SCPS. Analysis of previous contractor proposals indicated no significant advantages to steel shelters in terms of cost or operational improvements, but significant disadvantages in terms of additional time and costs to duplicate development and test efforts and loss of system standardization. Operational users have indicated no dissatisfaction with the structural composition and configuration of the current SCPS.

[CLERK'S NOTE.—End of questions submitted by Mr. Hefner. Questions submitted for the record and the answers thereto follow:]

PEACEKEEPER IN MINUTEMAN SILOS

Question. For the record, provide reliability data for the missile guidance and control section and elaborate on improvement actions the Air Force is taking.

Answer. The instrument responsible for holding back MGCS reliability is the Specific Force Integrating Receiver (SFIR) which is the guidance system accelerometer. Each MGCS contains three SFIRs. To function, the MGCS requires all three to work properly. The Air Force through BSD is working closely with the contractor (Honeywell) and the designer (Draper Labs) to solve the problem of lower than projected SFIR reliability. SFIR failures are due to arrest of the SFIR wheel. To date no single cause of wheel failure has been found; one cause is debris accumulation through wear in the 50 microinch gap between the bearing surfaces. Some of the debris is caused by lubrication material that over time degrades in the presence of freon (a cleaning agent) and high temperature. Corrective actions are being instituted and include: increased process control and discipline, elimination of freon cleaning and use of ultrasonic cleaning, a reduction in high temperature exposure, longer warm-up times to prevent cold starts and a reduction in excessive start-stop testing.

CUMULATIVE MISSILE GUIDANCE AND CONTROL SYSTEM (MGCS) RELIABILITY DATA AS OF MAY 2, 1989

Reliability measure	Actual	Projected	Target at maturity[1]
Meantime between recycle of MGCS	2,455	3,286	4,416
Meantime between failure (MTBF) of MGCS	2,558	3,551	4,906
MTBF (intertial measurement unit with instruments)	2,823	4,725	6,237
MTBF (intertial measurement unit without instruments)	6,991	6,497	9,627
MTBF (specific force integrating receiver)	22,372	84,285	109,000
MTBF (GYRO)	143,817	75,497	103,822

[1] 1.3 million operating hours (estimated—first quarter 1991).

PEACEKEEPER RAIL GARRISON

Question. The December 31, 1988 Selected Acquisition Report reveals a current total acquisition cost for the Rail Garrison program (excluding the cost of the missiles) of $6.8 billion. The comparable figure in the 1987 SAR was $8.5 billion. According to the SAR, the change is the "refinement of estimate as a result of updated program office estimate." This in addition to a $650 million downward "estimate refinement" reflected in the December 1987 SAR from the earlier estimate of $9.1 billion.

If the cost of 50 additional operational Peacekeeper missiles and a pro rata share of testing missiles and support equipment is included, what is the latest cost estimate for the Rail Garrison system?

Answer. We do not include the cost of additional Peacekeeper missiles in the Rail Garrison program because we do not have congressional approval to deploy more than 50 Peacekeeper missiles. These missiles are already deployed in Minuteman silos and their cost is considered sunk cost.

The President's budget request seeks to redeploy these silo based missiles to Rail Garrison basing. There are no additional deployment missiles in the President's budget request. Therefore, the costs reflected in the December 1988 SAR are correct.

Question. The fiscal year 1990 budget contains the first procurement funding specifically requested for the Peacekeeper Rail Garrison program. A total of $222.6 million, including $59 million for initial spares, is included.

Are you procuring under initial spares the same items for which leadtime advance procurement funding is requested?

Answer. There are several items being procured as initial spares and as advanced procurement. This is because the Air Force is committed to delivering a supported weapon system. The following items must be procured as initial spares in addition to advanced procurement to meet IOC. This is the same approach used with Peacekeeper in Minuteman Silos.

Multifunctional display set; environmental control system; launch tube, erection system components; transportation and handling support equipment; safety control switch; and diesel generator.

AMRAAM MISSILE

Question. Given the many AMRAAM Producibility Enhancement Program (APREP) changes to be introduced, are you confident the AMRAAM program will meet the stability of design and other multiyear procurement requirements?

Answer. We understand the need for design stability prior to engaging in multiyear procurement options. Consequently, all APREP changes are scheduled to be completed by Lot V (FY 1991) production. Additionally, both contractors are kept fully informed of all APREP modifications through an interface Control Working Group (ICWG), thereby insuring high confidence that production baselines are stabilized.

Question. Bring the Committee up to date on AMRAAM test activity within the last few months, giving special attention to live fire testing and AMRAAM's ability to acquire small targets.

Will live fire testing be completed by the time of the Defense Acquisition Board's III B (full rate production) decision, currently scheduled for September 1989?

Answer. All Initial Operational Test and Evaluation flight tests are expected to be completed by early August 1989 in time for the DAB III B scheduled for September 1989.

Question. The Committee understands that in February only 63 hours of testing was accomplished, compared with 150 hours planned. The Air Force hopes to complete 2,800 hours of flight testing by September. Is current test activity adequate to support a DAB III B decision in September?

Answer. Our intent has been to complete 2000 hours of flight testing vice the 2800 hours. At this time, we have experienced a higher failure rate than expected and we are unable to ascertain the potential adequacy of the test data to support the DAB III B decision until the completion of an on going evaluation of fixes to test failures. This evaluation is expected to be completed by 30 May 1989. The Air Force fully expects to be completed with testing to support a DAB III B decision in September.

Question. What is the status of the second source producer?

Answer. Raytheon, as the second source producer, successfully completed a build of 15 missiles for qualification lot. Ten of these missiles were ground tested and five were flight tested. Flight testing was completed in January 1989. The technology base has been successfully transferred to the second source and Raytheon is qualified to produce AMRAAM missiles. Raytheon has delivered seven Lot I production missiles. They are scheduled to deliver the remaining 68 Lot I missiles by 31 October 1989.

Question. Is the second source on schedule?

Answer. The Raytheon schedule was adjusted for Lot I deliveries because of required design changes to the Range Correlator and IF Receiver which were provided to Raytheon late. The revised Lot I schedule required the delivery of eight missiles through 30 April. Raytheon delivered seven missiles. The handling of production changes has shown improvement and Raytheon is currently scheduled to complete delivery of Lot I missiles by October 31, 1989.

Question. Have any second source missiles been flight tested?

Answer. Five of Raytheon's Qualification Lot missiles were flight tested with four of the five successful. The one launch that was not successful was caused by using an early software build with problems that have subsequently been corrected and fully verified. First Lot I flight test missile is scheduled for launch in late May 1989.

Question. The conferees on the 1989 Appropriations Act expressed concern with the AMRAAM unit cost, currently estimated at more than $900,000 for the 1989 buy. The budget justifications indicate the unit cost will decline to $600,000 in 1990 and $384,000 in 1991. The Committee supports this trend and will monitor actual experience carefully. How much of the decrease is due to APREP?

Answer. APREP savings account for 23 percent of the missile unit cost decrease.

Question. What are the total estimated APREP savings?

Answer. Current estimate of total APREP savings is $1.8 billion (fiscal year 1984 dollars).

Question. What has been the Government's total contribution to APREP?

Answer. The government has contributed the full cost of APREP. This totals a $315 million investment to date.

Question. The requirement for tooling and test equipment more than triples in 1990, to $157 million. Detail the reasons for this substantial increase.

Answer. The Speical Tooling/Special Test Equipment (ST/STE) estimate for fiscal year 1990 was based on the following:

a. Fiscal year 1989 ST/STE for 900 missiles was constrained to minimize building equipment that would be changed or replaced as a result of introducing APREP.

b. Fiscal year 1990 ST/STE adds equipment to build 1600 missiles from the Lot III constrained base for Hughes, Raytheon, and the vendors.

c. Additional ST/STE has been added to support the introduction of the bulk of the APREP projects. While the baseline ST/STE is building off an established base of factory and vendor equipment, the APREP STE must be able to ramp up from a new start in fiscal year 1990 to meet planned production quantities.

MAVERICK MISSILE

Question. The total Air Force procurement objective for the Maverick missile has declined by more than 60 percent, from 60,664 to 23,496. Under the present budget plan, the program will terminate in fiscal year 1992 instead of 1997. What are the reasons for this precipitous change?

Answer. The reduction in the Maverick missile procurement objective in fiscal year 1990 results from budgetary constraints. The wartime requirement for air delivered antiarmor weapons remains high; however, we are developing the Sensor Fuzed Weapon (SFW) which will reduce the requirement for Mavericks. SFW is scheduled to enter production in fiscal year 1991, and fiscal constraints dictate that we terminate Maverick production as SFW enters the inventory.

Question. What does this change say about the priority the Air Force gives to killing tanks and other targets in support of ground forces?

Answer. The Air Force is committed to full support of our ground forces by providing antiarmor weapons as well as other air-to-ground weapons and weapon delivery capabilities. We are procuring the mix of weapons and weapon systems (e.g., antiarmor weapons, air superiority and ground attack aircraft, air-to-air weapons, and air defense suppression weapons) that are appropriate under the constraints of a limited budget.

Question. What impact does the Air Force strategy have on Navy and Marine Corps requirements?

Answer. The Navy can procure their total requirement of Maverick missiles by the end of the current procurement period in fiscal year 1992. Also, the Marine Corps has completed their planned procurement of laser Mavericks.

Question. Explain your multiyear procurement rationale. What are the estimated savings, and what documentation do you have to support them, etc.?

Answer. Maverick acquisition strategy is to competitively downselect to a single contractor (Hughes or Raytheon) in fiscal year 1990, and award a three-year (fiscal years 1990–1992) multiyear production contract to the winner for a buyout of USAF and Navy Maverick missile purchases. Exhibits justifying this action have been submitted to Congress with the fiscal year 1990 budget. Maverick meets all the accepted requirements for submission as a multiyear program: the program, funding, and configuration are stable, and we have a high degree of cost confidence and several years of experience (8 annual production contracts with Hughes and 4 annual production contracts with Raytheon) in contractor capability. Our current estimate of program savings is 12.3 percent of missile recurring cost when comparing annual contracts to a multiyear program. This estimate is derived from a strong competitive program cost history based upon three successive (fiscal years 1987–1989) head-to-head, competitive, split award production contracts. Downselecting to a single contractor is appropriate at this time because fiscal constraints have kept our procurement quantities low, and we have projected a buyout of missiles. A multiyear contract with a single producer will yield the lowest unit cost by permitting increased production efficiency, and it allows us to reap the benefits of competition throughout the multiyear buyout period.

Question. What preplanned improvements might be experienced in the Maverick program? (e.g., MMW, extended range.)

Answer. The Air Force does not have a formal preplanned product improvement program for Maverick. The millimeter wave (MMW) program is a seeker development program which is being demonstrated on a Maverick air vehicle. We have not established a MMW Maverick development or production program. At Navy request, we are conducting a study to address the potential for extending the range of the Maverick missile. As with MMW, we have no production plans for an extended range Maverick. Neither of these potential programs are sufficiently defined to indicate whether there would be substantial commonality with the current Maverick missile.

Question. What is envisioned as the follow on to Maverick?

Answer. The next generation anti-armor munition is the CBU-97, Sensor Fuzed Weapon (SFW). Low Rate Initial Production is scheduled to begin in fiscal year 1991.

Question. Why shouldn't annual competition be continued to ensure competition for any preplanned improvement efforts and/or until the next system has attained initial milestones?

Answer. Maintaining competition by retaining two sources through split annual contract awards is not cost-effective at current annual production rates. Furthermore, there are no planned product improvements which could enter production before the current production program ends in fiscal year 1992. With respect to follow-on systems, we do not plan to replace Maverick in the near term. The missiles we have on hand and in production will remain in the operational inventory for many years. In fact, under the current program, a Maverick production line will remain open until fiscal year 1995 (to complete delivery of the fiscal year 1992 missiles). This is after our next antiarmor system, the Sensor Fuzed Weapon, is planned to have attained initial milestones.

Question. What is the status of the 1989 production funding? How much funding remains after buying the budgeted number of missiles? How many missiles do you estimate could be procured with the funds?

Answer. Of the $255.6 million in fiscal year 1989 production funds available to Maverick, $195.3 million has been placed on contract with Hughes and Raytheon for procurement of the budgeted number of missiles (2540). We have Maverick program requirements for the remaining $60.3 million; $5.0 million has been obligated to date. However, when the Navy fiscal year 1989 Maverick procurement option is exercised later this year, the average missile unit price will decrease. Depending on the amount of funding the Navy commits, this will reduce the required Air Force production obligation. We can either deobligate these funds as excess to need or, with Congressional authorization, buy additional missiles via a future contract (fiscal year 1989 production options expire 1 July 1989). We expect the Navy to commit their full fiscal year 1989 production appropriation; this would free up about $6.6 million for the Air Force, which could buy approximately 100 additional Mavericks.

TACIT RAINBOW

Question. Explain your latest acquisition strategy for the Tacit Rainbow program.

Answer. The Air Force is pursuing a competitive acquisition strategy for Tacit Rainbow. The Phase One Studies contracts require the three competing contractor teams to include life cycle cost analyses and an examination of second sourcing of the entire missile, as well as all major components, in their proposals. Any decisions regarding second sourcing will be based on the life cycle cost analyses. The available second sourcing options are unconstrained and include build-to-print, leader-follower, and form, fit and function. The performance and cost of the entire missile will be the sole responsibility of the prime contractor(s), who will be free, at any time, to compete and/or second source any component of the missile, including the seeker. We anticipate that each of the competing contractor teams will have a second vendor for the seeker as well as for many other components.

Question. What caused the latest test failure and what are your latest revised estimates for completion of DT&E/IOT&E testing and a Milestone IIIA decision?

Answer. The cause of the failure in the first DT&E/IOT&E flight test on March 30, 1989 is still under investigation. We have not revised our estimates for completion of DT&E/IOT&E and the Milestone IIIA decision. We expect both of these events to occur in the fourth quarter of fiscal year 1990.

Question. One year ago, the Air Force Tacit Rainbow requirement was ——— for a total of ———. This year the program total is ———. However, the Air Force has increased to ——— and the Navy has declined to ———. The Committee understands that during an interim Air Force review, the Air Force requirement for a time was less than ———. Why is the requirement changing?

Answer. The Air Force requirement for lethal Suppression of Enemy Air Defense (SEAD) Unmanned Air Vehicles (UAV) remains firm. However, the Air Force has determined it can meet its needs with only the air launched variant of Tacit Rainbow. This change in the employment concept has resulted in an increase in the air launched version to about ——— and a decrease of the ground launched requirement to ———. The Air Force is conducting studies to refine these initial quantity estimates, to include inputs from the war fighting CINCs. These should be reflected in the next budget submission.

Question. When do you estimate you will be on contract with (a) remaining 1987/1988 funds, (b) 1989 long lead funds, and 1989 funds?

Answer. We expect to be on contract for the remaining 1987/1988 funds by the end of August 1989. We expect long lead for the pre-production verification (PPV) missiles to be obligated in August 1989 and PPV itself by December 1989.

Question. What events must occur before award of the funds?

Answer. The remaining fiscal year 1987/1988 funds will be used for the Phase III nonrecurring production efforts; contract award will occur as soon as possible after evaluation of Northrop's proposal is completed. The required event for this award is the start of DT&E/IOT&E, which occurred on March 20, 1989. The long lead funds for pre-production verification (PPV) will be obligated after the second DT&E/IOT&E test flight is completed and three additional test vehicles are delivered to the government. The remaining fiscal year 1989 funds for PPV will be awarded after five DT&E/IOT&E test flights are completed.

Question. Is it expected that either the Air Force or the Navy will have 1989 funds not needed to support the revised preproduction verification buy?

Answer. All of the Air Force and some of the Navy fiscal year 1989 missile procurement funds will be needed for the pre-production verification (PPV) effort.

HAVE NAP

Question. Included in the pending budget request is $21.7 million for HAVE NAP missiles. Congress provided initial procurement funding last year in response to an urgent requirement claimed by the Strategic Air Command for a conventional standoff precision guided munition. When this program was originally justified to Congress last year, eight flight tests were to be conducted before the award of a procurement contract. Now the Air Force intends to conduct three tests before contract award.

Please explain the reasons for this change.

Answer. The Initial Operational Test and Evaluation (IOT&E) program was scheduled to be complete before award of a procurement contract. However, Congress did not approve the necessary funds to start the effort until June 1988, six months after the USAF hoped to begin IOT&E. Due to the urgent need, low technical risk of an off-the-shelf system and test success to date, it was decided to proceed with initial Lot I procurement (six missiles).

HAVE NAP is a mature, proven weapons system, operational in the Israeli Air Force since 1985. The USAF completed a Foreign Weapons Evaluation with two successful launches from a B-52G in June/July 1987, and a single successful launch from an F-111 in November 1988. In addition, three successful launches were completed from a B-52G in IOT&E. In each case, the weapon system demonstrated an accuracy ——— from standoff ranges exceeding 45 miles when launched at high altitude and 22 miles when launced at low altitude. This success warrants proceeding with Lot I procurement (six missiles) to meet urgent operational requirements while continuing to test the weapon's performance limits and determining its full potential for operations.

Question. What have been the test results to date?

Answer. To date, the USAF has successfully tested six HAVE NAP weapons without a failure—three in Foreign Weapons Evaluation (FWE) and three in Initial Operational Test and Evaluation

(IOT&E). In each case, all the test objectives were met and the weapon system performed as expected. The following is the demonstrated point target accuracy for each test launch:

Activity	Date	Launch range	Launch altitude	Demonstrated missile distance
FWE No. 1 (B-52G)	June 1987	45NM	35,000	[Deleted]
FWE No. 2 (B-52G)	July 1987	22NM	1,500	[Deleted]
FWE No. 3 (F-111)	November 1988	21NM	1,000	[Deleted]
IOT and E No. 1 (B-52G)	January 1989	45 NM	20,000	[Deleted]
IOT and E No. 2 (B-52G)	February 1989	30 NM	1,500	[Deleted]
IOT and E No. 3 (B-52G)	March 1989	23NM	1,500	[Deleted]
Average Missile distance from center aim point				[Deleted]

Question. When do you expect to award the 1989 production funds?

Answer. Initial contract award for Lot I missile procurement (six weapons) is planned for 30 June 1989.

Question. What is the status of the HAVE NAP reprogramming request submitted to Congress and how does the reprogramming action figure into your strategy and schedule?

Answer. The Congressional Reprogramming request for $14.0 million has been approved. These funds will be used to complete the Initial Operational Test and Evaluation and allow the program to remain on schedule.

AGM-130 PROGRAM

Question. There is no funding request in the Reagan budget submission for the AGM-130 program. The AGM-130 is a powered GBU-15 with a 2,000 pound warhead designed to attack hardened targets from a stand-off distances. The Committee understands that based on recent tests, the Air Force may be revising its position on the AGM-130.

What have been the objectives and results in testing during the past year?

Answer. AGM-130 Development Test and Evaluation (DT&E) has continued throughout the last year. The DT&E objectives were to verify launch transients; subsystem performance; rocket motor jettison; man-in-the-loop interface through the data link; flight stability; range performance; and terminal performance. All of these critical technical capabilities have now been demonstrated with the ten DT&E launches. DT&E began in 1987 with nine launches planned. Since the contractor was behind schedule and had not verified all missile functions prior to the first development launch, the contract committed to replacing this missile should it not achieve its objectives. The missile did not complete its flight due to insufficient autopilot gain margins and the contractor replaced the missile. Three additional launches were conducted from December 1987 through June 1988. Two of these vehicles did not complete their flights due to a safety switch failure in one missile and failure of a relay common to the GBU-15 in the other missile. These problems were corrected and the next five missiles launched from August 1988 through March 1989 flew successfully to direct hits on their targets. During the tenth and final development launch on April 26, 1989, the missile rocket motor did not ignite. Analysis to determine the cause is underway. The missile has demonstrated its ability for high and low altitude launch; changing cruise altitude; flying over land, water, and rough terrain; automatically and manually tracking targets; excellent accuracy; and maximum range. While demonstrated reliability is slightly below predicted reliability for this point in the military of the system, the missile technical performance has proven to be excellent. The missile has been certified to start operational testing.

Question. What is the requirement for this weapon, and how is the Air Force currently trying to meet that requirement?

Answer. The requirement for the AGM-130 Short Range Precision Standoff Weapon is derived from the significant surface-to-air threat currently deployed or under development by potential adversaries. Due to the numerous surface-to-air threats surrounding high-value targets, a weapon is required which allows attack of the target without the delivery aircraft entering the lethal envelope of the terminal defenses. Precision accuracy provides an economy of effort which frees sorties for other critical missions. These operational requirements have been validated by Tactical Air Forces (TAF) Statement of Operational Need (SON) 301-86 and System Operational Requirements Document (SORD) 301-86.

Current inventory weapons, while effective against certain targets, fall short of the requirement due to several factors. General purpose bombs and cluster munitions require overflight of the target for optimum weapon effects. This delivery profile places aircraft in the lethal envelope of terminal defenses, raising the probability of attrition to unacceptable levels. Though more precise than general purpose weapons, close-in standoff weapons do not provide the necessary standoff needed to attack highly defended areas while providing required man-in-the-loop targeting flexibility and real-time battle damage assessment.

AGM-130 is the only low cost standoff weapon available in the near term (prior to 1996). Being an improvement of the current GBU-15, it uses a mature production line and retains 65 percent commonality. It is also low cost to employ because it uses current GBU-15 capable aircraft with no modifications and uses the GBU-15 logistics base. Finally, the AGM-130 2,000 lb warhead is a very versatile, proven warhead which can be used against all high value, fixed targets.

Question. How seriously is the Air Force considering a 1989 reprogramming or an amended 1990 budget request for the AGM-130?

Answer. The Air Force is not considering a 1989 reprogramming for the AGM-130 because a production contract would not be awarded until March 1990. This allows completion of operational testing in late 1989 and completion of an Air Force Systems Acquisition Review Council AGM-130 review in February 1990. Fiscal year 1990 funds are more appropriate for a March 1990 contract award. The Air Force is seriously considering pursuing fiscal year 1990 funding for AGM-130 production. However, the Air Force does not plan to initiate any action until the Department of Defense has provided the revised Standoff Weapons Master Plan to

Congress. We anticipate this Plan to be provided to Congress in May/June 1989.

Question. How would the Air Force reconcile a potential 1989 or 1990 request for AGM-130 with the Standoff Weapons Master Plan issued last year, which contained no provision for the AGM-130?

Answer. The Standoff Weapons Master Plan guides the development and procurement of standoff weapons based on many factors, including known and projected technology, threats, targets, fiscal constraints, delivery aircraft capabilities, and actual success in developing weapons. The Master Plan is updated on an annual basis to reflect any changes in these factors. The AGM-130 development status has definitely changed from unsatisfactory to satisfactory since last year's Master Plan was issued. This year's version of the Master Plan is expected to consider all changes which have occurred and recommend a limited buy of AGM-130 missiles.

Question. What is the inventory objective for the AGM-130?

Answer. The current ——— inventory objective is ———. This is based on the draft fiscal years 1990-1997 Nonnuclear Consumables Annual Analysis, a document which establishes conventional munitions requirements in support of worldwide theater OPLANS.

Question. What is the estimated unit cost for the AGM-130?

Answer. The unit cost of the AGM-130 varies depending on the fiscal year when production is started and the ramp-up of production quantities over the years of the production buy. For a production start in fiscal year 1990 with a modest buildup to an annual 600 missile economic production rate in fiscal year 1994 and a 600 missile annual production thereafter, the then year Total Procurement Unit Cost (TPUC) for buying 1554, 2000, 3000, and 4000 missiles is $278,000, $268,000, $255,000, and $249,000, respectively.

TACTICAL AIR LAUNCHED DECOYS

Question. For several years the U.S. Navy has funded a program for tactical air launched decoys. Although there is no 1990 budget request, the Navy says an unfunded requirement exists for both non-powered glide decoys currently in production and powered decoys with greater range.

What is the Air Force position on air launched decoys and what different tactics does the Air Force use to arrive at this position?

Answer. The Air Force currently has no requirement for tactical air launched decoys. The naval scenario lends itself to the effective use of air launched tactical decoys. However, the geographically spread layout and rapid land resupply of enemy defensive munitions in a potential Air Force scenario significantly degrades the decoy's utility. So, the decoy's benefits do not outweigh the cost of taking up weapons stations used to deliver munitions.

INDUSTRIAL BASE FOR SPACE PROGRAMS

Question. The dependence of the Air Force on single suppliers for some critical materials and parts in space programs has recently become evident.

How fragile is our industrial base for critical space materials and components?

Answer. The industrial base supporting space activities is no more or less fragile than any of the other industrial sectors supporting our national economy and defense. DOD weapon systems, like commercial products, are acquired through a complex, diverse, network of primes, subcontractors and vendors. As a normal course of doing business and for many legitimate reasons, many of the contracts issued are with single or sole source suppliers. While this makes the system more fragile, it is inherent to the nature of a free market system. In addition, the sophistication and expense involved in producing today's weapon systems make it unaffordable to have the extra inventories, capacity, tooling, or test equipment that it takes to provide desired redundancy that can act as a safety margin. The small production runs normally associated with space programs seldom justify dual sourcing from a financial perspective. In fact, in cases where the Air Force has budgeted for stockpiling rolling inventories of parts for selected weapon systems under our industrial preparedness lines, Congress has zeroed the proposed funds. In this environment, the key is to have contractors constantly assessing and determining the most likely vulnerabilities. This is done and monitored during production readiness reviews and in the normal preparation and administration of contracts. For those items where the risk is deemed unacceptable, appropriate action should then be taken to mitigate that risk. Unfortunately, no matter how much we try to reduce our vulnerability within the subtier base, we will never be able to afford to dual source enough vendors or to stockpile enough components to make sourcing risk free.

Question. What is being done to reduce our reliance on single-source vendors?

Answer. The Air Force has for many years worked with our prime contractors on critical sourcing decisions. While the Federal Acquisition Regulations and legal precedence support a prime's "privity of contract" in choosing vendors and making it the final sourcing decisions, industry and government recognize our need to understand and influence the sourcing decision process. We monitor make or buy plans, subcontract management plans, and hold production reviews on a regular basis to ensure the prime contractor, appropriately and fairly, weighs the benefits and costs/risks associated with single or dual sourcing decisions. These decisions are not easy because often productivity and financial considerations, essential to the survival of the company, conflict with industrial preparedness actions that may require having some duplication, unused capacity, or extra tooling. Air Force acquisition regulations make it a program manager's responsibility to understand industrial bottlenecks and, where appropriate and cost-effective, to plan around them. Nevertheless, the fact remains that almost every weapon system is comprised of thousands of components of which many hundreds are, for very legitimate reasons, not dual sources. We believe that most Air Force contractors and program managers do their best to target the most risky, high dollar, and critical parts for dual sourcing. However, any supplier source that disappears quickly, as a result of a natural or unnatural disaster, patent infringement rulings, or environmental noncompliance, can potentially stop a production line.

Question. Many of these programs are on fixed-price contracts, and some are on multi-year contracts. This puts much of the responsibility for maintaining an adequate base of suppliers (including backup sources) on prime contractors. Yet, in cases like Avtex, the Government stepped in to address a problem which the large prime contractors had a partial responsibility for. What do we need to do to ensure that when contractors sign such contracts, they remain responsible for their vendor base?

Answer. The issue of prime contractor ("prime") responsibility for suppliers is one of the most fundamental elements of Government contracting, but a complex one.

It is DOD policy and a long standing general principle that primes are responsible for performance under their contract, whether done entirely by the prime or with the aid of outside suppliers. In a standard contract, the Government has a contractual right to terminate for default if the prime fails to perform, irrespective of whether the failure is due to the fault of the prime or its supplier.

The prime must take whatever actions are necessary to ensure the supplier performs, so that the prime can perform. The Government recognizes reasonable costs to the prime to manage its supplier base, including assistance to a supplier experiencing technical, production or related problems. Primes develop, hire, fire and assist their suppliers. Sometimes primes are in default due to a supplier failure that prevented the prime from performing its contract. Thus, the prime is certainly motiviated to ensure performance by its supplier, and in the vast majority of the cases of the prime does so.

In the Avtex case, Avtex is a supplier to all of our major solid rocket motor manufacturers, ranging from the fourth-tier to the sixth-tier. For decades, Avtex sold this product to the supplier chain on a commercial basis. From time to time, there were technical problems with the product, but, typically, they were resolved by a lower tier supplier without the intervention of the prime. In November 1988, Avtex's financial position caused them to abruptly close their plant. There was an immediate response from the supplier chain and the primes. There was cooperative data accumulation and investigations, and even proposals to jontly provide financial assistance to Avtex. All of this was done without Government intervention. Up to this point, the actions taken by the primes followed the general principle of prime responsibility for suppliers. Avtex would require at least $43 million to restart the plant, with absolutely no assurance this amount would permit Avtex to operate more than a few months. Private purchase of the business considered by one major prime, was rejected because of the long standing environmental problems and the potential clean up liability. Primes had not expected an event of this magnitude and had not included in their prices any amounts to cover a situation of this type. Recovery of any expenditures from the Government was unlikely. Efforts by the primes abruptly ceased.

The Government faced a dilemma. Major operational and economic impacts would result if Avtex remained closed. We had no means to force the primes to use their own resources to reopen the plant. High level persuasion was unsuccessful. The one contract option we had was to allow the plant to close, wait until prime contract performance was jeopardized, then terminate for default. Even that option, such as it was, would not be available for those contracts in process, but not yet awarded. The Government had no other option except to intervene.

There comes a point when the price a prime must pay for taking responsibility for a supplier overcomes the potential price exacted by the Government in a default termination. A possible alternative could be some "specific performance" provision that would essentially provide that the Government could direct (or seek through the courts) the prime to take specific actions in regard to a supplier, e.g., pay Avtex $43 million. Even this extreme approach may not yield the desired result, however, if the prime is unable to comply. The disadvantages of this approach are immense. If primes were made responsible for maintaining their suppliers, including the extreme cases such as Avtex, they would undoubtedly, and perhaps legitimately, seek to increase their prices to cover that contingency, either as an "insurance premium" or through qualification of redundant sources. Since one cannot predict when supplier failures will occur, we could expect to see charges on each contract with duplicate charges for primes with the same suppliers.

In light of Avtex and other isolated similar incidents over the past few years, we have considered stronger measures for holding primes accountable. The equity of forcing a prime to pay $43 million to preserve a supplier, when the prime is holding a $10 million contract, would be questionable. We have concluded that the present default option is the practical limit for holding primes accountable.

TOTAL QUALITY MANAGEMENT

Question. What is the Air Force doing to implement Total Quality Management (TQM) and specifically, what programs are being reviewed under that concept?

Answer. TQM is a management philosophy which focuses on quality and continuous process improvement throughout the organization to achieve customer satisfaction. It requires long-term commitment and dedication by top management to create the environment for a cultural change both internal to the Air Force and in our suppliers. We believe the long-term benefit of increased quality will be increased user satisfaction and reduced life-cycle costs. Much of the benefit of TQM will be realized in the logistics support area from better products that last longer and perform better.

The Assistant Secretary of the Air Force for Acquisition has issued a policy memorandum on TQM and created an Executive Council for TQM in Acquisition headed by the Deputy Assistant Secretary for Acquisition Management and Policy. The council's role is to facilitate implementation of TQM in acquisition. In addition to major acquisition policy directors in the Secretariat and Air Staff, AFLC, AFSC, and AFCC are members.

Both AFLC and AFSC are heavily engaged in TQM implementation. Both have provided a significant amount of awareness training to their personnel and some specific training in process analysis techniques. They have established organizational entities to facilitate TQM implementation and have formed process action teams (PAT) to begin process improvement. For example, AFSC has established PATs to review the Request for Proposal process and to investigate incentives for contractor implementation of TQM. AFLC has a joint PAT with industry to identify impediments to implementing TQM and to recommend ways to remove these barriers. These efforts still have a long way to go, but should ultimately benefit all programs.

Maximum benefits will not be realized, however, until our contractors embrace and apply the TQM philosophy. This is a long term effort. Mr. Galvin, Vice President of Motorola, winner of the Malcolm Baldridge Award, states that it took Motorola over eight years to be in a position to win the award. Many of our defense contractors have started this long journey, but most of them are truly in the awareness stages. Others have yet to embark.

Question. In theory, TQM should lead to cost savings due to streamlined acquisition procedures.

Does the Air Force have an approved policy on how those cost savings will be handled (for example, through reprogramming)?

Answer. TQM is focused on quality improvement, not cost reduction. Savings realized from TQM implementation are cost avoidances and would be reflected in lower estimates in programming and budgeting documents for future years. TQM implementation is a long-term process. In acquisition, our contractors must embrace and implement TQM before we begin to realize the continouous quality improvements and avoidance of unnecessary costs. Should savings be generated, they would be subject to normal reprogramming procedures.

Question. Does the Air Force intend to notify Congress when significant savings occur?

Answer. TQM is not a program but a process that involves a cultural change in management philosophy. We would not expect to see a separate identification of savings specifically identified as TQM. The cost avoidances that result from improved management and continuous process improvement will show up in lower program estimates and budgets in future years.

Question. If savings are negotiated after those funds are put on contract, what impediments will you have in getting those funds returned to Air Force control?

Answer. The answer has many facets and depends in part on the particular contract being used and the competitive position of the contractor. In firm fixed-price contracts, the savings in efficiency, if not already negotiated in a lower price, will accrue to the contractor. In incentive contracts, both fixed-price and cost, the savings would be shared in accordance with the negotiated share ratio. All cost reductions in cost plus fixed-fee contracts would accrue to the Air Force. Under our cost-based pricing system, the savings would be reflected in lower costs for follow-on effort.

This latter fact is a major impediment to getting contractors to embrace TQM since the cost-base pricing system tends not to reward improved quality and efficiency, particularly on sole source follow-on effort. The Value Engineering and the Industrial Modernization Incentives Programs recognize this situation and provide for contractor sharing of cost reductions realized from his improvement efforts. Award fee also offers a mechanism to increase profit for quality improvement efforts. Ultimately, the more directly future business depends on quality improvement, the stronger the motivation for such improvement.

DELTA II SPACE LAUNCH

Question. The Air Force requests $80 million in fiscal year 1990 to procure two Delta II space launch vehicles.

According to the Air Force, this program is experiencing a projected cost overrun of over $100 million. What is the exact amount and the cause of the overrun?

Answer. As of 31 March 1989, the contractor's projected cost overrun at completion on the Delta II contract is $140.2 million. Of that figure, the government will be liable for $94.2 million.

The overrun was caused by several factors. The four major problems areas are 1) production startup problems involving new tooling, as well as parts shortages that resulted from time required for retraining of new personnel to replace labor skills lost during the previous shutdown of ELV production; 2) assumptions of subcontract/vendor prices and availability which were made by the contractor in his proposal and have not come to pass; 3) an underscoping of the actual manhours and materials required to perform the tasks; and 4) technical problems during the development and qualification program which required much more rework than planned.

Question. How will the overrun be financed?

Answer. The government's liability toward the overrun ($94.2 million) spans three appropriations: RDT&E ($18.0 million), Missile Procurement ($65.7 million), and Operations & Maintenance ($10.5 million). Of that total amount, the program office has been able to reallocate $56.8 million of resources in hand from ECO and other cancelled/lower priority items (e.g., Special Studies) to apply toward the overrun. The Air Force has initiated internal actions to identify sources for the remaining funds ($27.6 million in FY 1987, $9.8 million in FY 1988).

Question. Are any of these overruns on fixed-price type contracts, and if so, will the Air Force breach the original not-to-exceed values?

Answer. The overrun is entirely limited to contract F04701-87-C-0005 with McDonnell Douglas Space Systems Company. The contract is a Fixed Price Incentive, Firm Target type contract with a 90/10 share ratio above target and a ceiling of 125 percent of target cost. The currently projected overrun and corresponding additional required funding will place the contract at the ceiling price. The Air Force does not project any requirement to, nor does it intend to, increase the contract value beyond that ceiling limit.

TITAN IV SOLID ROCKET MOTOR

Question. The Air Force is developing a new, filament-wound solid rocket motor for the Titan IV launch vehicle called the SRMU.

Has the Air Force ever flown a filament-wound solid rocket motor comparable to the SRMU's size? For the record, provide the dimensions of both the SRMU and the closest comparable filament-wound motor currently in production.

Answer. The Air Force has not flown a filament-wound solid rocket motor comparable in size to the SRMU. However, the Air Force does have considerable experience in flying filament wound solid rocket motors. The largest Air Force flown filament-wound solid rocket motor is the Peacekeeper first stage (92" diameter, 16' in length). This motor has flown successfully 18 consecutive times. The largest segment in the SRMU is 120" in diameter and 451" in length and is produced by Hercules, Inc. Hercules has also built and successfully tested a filament wound motor of comparable size to the SRMU, the Filament Wound Case for the Space Shuttle. They built 51 cases and the dimensions of the largest segment of this motor were 146" diameter with a 320" length.

Question. Less than half of all Titan IV flights require the added capability of the new motor, which costs more than the existing motor when development costs are amortized in. Why are we requiring all users to buy the more costly SRMU when most users don't need it?

Answer. If the development costs are amortized, the SRMU costs more than the SRM. However, without that amortization of development costs, both motors cost about the same. The principal reasons for developing and producing the SRMU was to increase capacity, producibility and reliability. Our current production capacity does not meet the launch schedule demands projected over the mission model. SRMU production capability will meet these demands. There are significant difficulties with continuing the existing SRMs because they utilize old technology which has made maintaining (or expanding) the supplier base very difficult and not cost effective. The existing SRMs are very labor intensive and, therefore, less cost effective to produce. Additionally, to continue production of this motor would require some design changes to eliminate some hazardous materials (such as asbestos) or to replace difficult to acquire items and to bring it into compliance with current requirements. While not all spacecraft require the performance (lift capacity) of the SRMU, some missions cannot be performed without them, and several more missions will be marginal without them. Due to current SRMU production delays as a result of a fire/explosion, on 29 March 1989, at the SRMU manufacturing facility at Magna, Utah, the Air Force is evaluating the option of extending current SRM production. This is primarily an interim extension, as maintaining two motor suppliers as a long term basis is too costly. An extension of the SRM production would only be done to cover uncertainty and reduce risk during the transition to the SRMU.

Question. Has the Aerospace Corporation studied the advantages of mixed fleet of both steel-case and filament-wound motors (or a more gradual transition to the motor now under development)? If not, why not, given their long experience in production base analysis?

Answer. The Aerospace Corporation is currently assisting the Titan IV program office in a study of the cost and schedules, advantages and disadvantages of maintaining a mixed fleet. We expect this study to be complete by mid-June 1989.

Question. The SRMU is being developed at the same Hercules facility which recently experienced a major fire. What is the impact of this fire on the SRMU program and has it caused the Air Force to reconsider its plan to close the existing solid rocket motor production line?

Answer. The fire at the Hercules Magna, Utah production facility will delay the first test firing of the SRMU by about four months. Until the production facility is back on-line the schedules are still subject to change. However, the test firing is now currently scheduled for February 1990. The Air Force still plans to transition to the filament-wound cases once the final steel-case solid motor is produced and flown. Nonetheless, we are studying the impacts of keeping the existing solid rocket motor production line open for an additional period of time.

Question. What would be the impact on our assured access to space if a fire such as this occurred at the SRMU facility in the mid-1990's?

Answer. If a similar fire occurred in the mid-1990's there would be no impact or minimal at worst. The reason for this is Hercules plans to have three propellant mixing facilities on line. The loss of the output of one facility could be mitigated by the other two plants during the time it takes to replace the damaged facility. At the time of the fire in March 1989 the Hercules facility only had two propellant mixers on-line.

Question. Has the Air Force formally considered development options of improving the existing motor instead of developing, at great cost, an all new motor, and if so, who performed those studies and what were the specific reasons for not improving the existing motor?

Answer. No, the Air Force has not considered formally the development of improving the existing solid rocket motor for the Titan IV. However, in 1987, Martin Marietta Aerospace Group, with the approval of the Air Force, conducted a competition for a solid rocket motor upgrade for the Titan IV. One of the reasons for this competition was producibility. The existing motors are of 1960's technology and as such are very labor intensive. Additionally, the existing manufacturer could not make the motor in the quantities desired. Because of these reasons it was decided not to improve the existing design but to go with a new design.

MOBILE ARMORED RECONNAISSANCE VEHICLE/STAND-OFF MUNITION DISRUPTOR

Question. The Mobile Armored Reconnaissance Vehilce/Stand-Off Munition Disruptor (MARV/SMUD) is a Light Armored Vehicle on which is mounted a .50 caliber machine gun in a Swedish-designed turret with a sophisticated targeting and sight system. The purpose is to shoot and detonate (from 250 meters) small mines which have been dropped on runways by enemy aircraft. A general provision in the 1989 appropriation act requires reprogramming of $18.2 million to initiate procurement of MARV/SMUD.

What is the status of this program?

Answer. The Critical Design Review (CDR) was conducted in February 1989 as scheduled. Two MARV/SMUD prototypes are to be delivered to Eglin AFB, FL, in May, 1989. Both prototypes will be used to support DT&E and IOT&E testing in May–October 1989. Prime contractor's Full Scale Development (FSD) effort is progressing well. GFE contract for LAVs, to be funded by the $18.2 million reprogramming, must be awarded in August 1989 to provide LAVs in accordance with terms of prime contract.

Question. What are the scheduled dates for development and operational tests and approval for service use?

Answer. Development and operational tests will be conducted May 15–July 15, 1989, and June 15–October 15, 1989, respectively. Major critical items will be concentrated on early in the test periods.

DT&E tests include: environmental testing for high and low temperature, freezing rain, salt and fog, and sand and dust, scheduled for May 15–June 30; and SMUD system tests for system accuracy, boresight retention, and target acquisition, both by day and by night, scheduled for July 1–July 15.

IOT&E tests, also conducted both by day and by night, include: reconnaissance tests of ability to assess runway damage and locate/identify unexploded ordnance, crew ingress/egress capability, and visibility from within the vehicle, scheduled for June 15–October 15; and SMUD system tests for safing unexploded ordnance and install/harmonize .50 caliber machine gun with sighting system, scheduled for June 15–July 15.

Approved for service use is expected in November, 1989.

Question. The justification books indicate that a delay has been caused by an Air Force requirement for a change in operator location. Explain this.

Answer. The location of the LAV–L operator's position provided only 270 degree visibility; MARV/SMUD requirement is 360 degree visibility. The new position provides the required 360 degree visibility.

Question. Last year you claimed a total requirement of 283 MARV/SMUD's. Why does your current budget fund only 150?

Answer. The Budget Revision funds 180 units, in fiscal year 1989 through fiscal year 1994. The total requirement is 277 units. The austerity of the current defense budget precludes funding the total requirement through fiscal year 1994.

Question. The economic production rate for MARV/SMUD is 60–90 vehicles per year. Why does your budget fund far less than this?

Answer. Unit price breaks are achieved at increments of 10 units. We have funded a start-up year in fiscal year 1989 with 20 units which is the minimum annual procurement quantity; we have no fiscal year 1990 funding because of leadtime, and we fund 40 units per year thereafter to achieve a more economical production rate. Unfortunately, we can't dedicate enough dollars in individual fiscal years to achieve the optimum annual production rate.

Question. The requirement for MARV/SMUD is to put a round in a six inch circle at 250 meters at least 90 per cent of the time.

Last year, the Air Force stated that "this is a level of accuracy well beyond what is customarily expected of the M-2 machine gun." What gun will be used on MARV/SMUD and when will the required accuracy be demonstrated?

Answer. The requirement for the MARV/SMUD is to put a round in a six inch circle at 150 meters at least 90 percent of the time. A previoius July 13, 1988, letter from the then Deputy Assistant Secretary for Force Support inadvertently stated the requirement to be 250 meters.

The M-2 HB (hard barrel) .50 caliber machine gun will be used on the MARV/SMUD. Single shot capabilbity, along with the hard mounted gun system, provides the necessary stability to meet and possibly exceed the 90 percent accuracy requirement. Recent contractor performed development tests showed results in the 95 percent range. Program Office and user will verify these results during operational tests at Elgin AFB. The Air Force does not foresee any difficulties in the system's ability to meet the requirement.

Question. The Air Force has a critical shortage of explosive ordnance disposal personnel. What is the Air Force doing to address this shortfall?

Answer. The Air Force is investigating a number of initiatives to address the critical shortage of explosive ordnance disposal personnel. Five specific areas being pursued are: 1) the acquisition of the MARV/SMUD reconnaissance vehicle and other protective equipment; 2) the possibility of increasing EOD authorizations in the Air National Guard and Air Forces Reserve; 3) the establishment of a viable Individual Mobilization Augmentee Program; 4) the implementation of a personnel redistribution study to see if carreer fields with higher percentages could be lowered to increase EOD manning; and 5) augmentation provided from the Air Force Ready Program to assist EOD in base recovery.

Question. Why should we buy MARV/SMUD if we don't have sufficient personnel to operate them?

Answer. The major requirement for the MARV is to provide protection for base recovery personnel and their equipment from explosive hazards during airfield reconnaissance and explosive safing operations.

It is precisely because we have a severe wartime shortfall in EOD personnel that the MARV/SMUD is urgently needed. The MARV is a partial solution to the EOD personnel shortfall. It is a force multiplier. The protection it offers and the speed with which it can safe ordnance will allow each base recovery team to do the work or several using current equipment. Its dual role (damage reconnaissance and ordnance safing) calls for an integrated crew. Only a part of that crew will be EOD personnel. Total crew composition is made up of EOD technicians, civil engineering damage assessor, and augmentees to assist in damage assessment. The maximum crew size of the MARV is seven people. Of these, at least one, but rarely more than three, will be EOD technicians. The MARV/SMUD capability requires no more EOD personnel than other methods of reconnaissance and safing. The vehicle's capabilities will increase base recovery team survivability and therefore maximize their availability for future base recovery missions.

Question. What changes have been made on the MARV/SMUD configuration since last year?

Answer. The only configuration change since last year is the one involving relocation of the operator's location.

Question. Is the Air Force currently considering alternatives to MARV/SMUD? Please explain.

Answer. No. The Air Force continually reviews the latest technology in the field of armored reconnaissance vehicles and stand-off munition disruption for potential cost savings and product improvements. The MARV/SMUD, utilizing the LAV-L vehicle, is the system that has emerged from our studies.

Question. The initial procurement of MARV/SMUD has a unit cost of almost $1 million. What are the anticipated unit costs in later procurements and what is the basis of your estimate?

Answer. The $1 million unit cost in the first production option includes six months of prime and subcontractors' engineering effort in preparation for the First Article Acceptance Test and Physical Configuration Audit. Anticipated unit costs, including GFE and integration, are a function of the number of units procured. At the rate of 40 units per year, the estimated unit cost will be approximately $700,000. This is based on firm fixed prices for the integration effort and Army cost estimates for the GFE LAV-L.

Question. For the record, provide a complete procurement profile for MARV/SMUD.

Answer.

	Quantity	Amount (millions)
Fiscal year:		
1989	20	18.2
1990	0	0
1991	40	26.2
1992	40	26.8
1993	40	27.4
1994	40	28.2

Question. Why is no funding included for MARV/SMUD in fiscal year 1990 and what impact will this action have on the production options in the current contract with SACO?

Answer. Because of the lead-time associated with the FY 1989 program, absence of FY 1990 funding will not impact the contract with SACO. It was for this reason that no funds were requested in FY 1990.

Question. Since a production decision will not be made until fiscal year 1990, why is it necessary to obligate any funding in fiscal year 1989? What are your specific plans in this regard?

Answer. Funds for the basic vehicle (LAV-L) must be awarded in fiscal year 1989 because of the 11 month lead-time required to deliver the LAV-L as GFE to the integrating contractor. The production option on the R&D contract requires delivery of LAV-L to the integrator in July 1990; therefore, award of the LAV-L must occur by August 1989.

Question. Earlier this year, the Committee was given a list of proposed funding sources for MARV/SMUD. Why is the Air Force taking almost $5 million out of the chemical biological defense program for MARV/SMUD? How do you justify these priorities?

Answer. The offsets identified earlier are subject to change. At the time they were identified, the rationale was to absorb the cost of the MARV within the Air Base Operability program. By the time an official reprogramming request is submitted, contract savings may be available to fund a portion of the MARV cost.

Question. When will the formal reprogramming action be submitted to the committee for prior approval?

Answer. We are in the process of determining possible alternative sources to fund the MARV/SMUD. When this has been accomplished, we will submit the formal reprogramming request.

GBU-15 Bomb Component Overpricing

Question. The General Accounting Office reported last November that the Contractor did not disclose accurate, complete, and current material pricing information on seven components for a 1986 procurement of the GBU-15 guided bomb. This resulted in overpricing in excess of $1 million. GAO reported that the Air Force contracting officer agreed that the nondisclosures caused overpricing.

What have you done to recover these costs?

Answer. The Ogden Air Logistics Center (ALC) Procurement Contracting Officer (PCO) notified Rockwell International Corporation (RIC) of the alleged defective Rockwell International Corporation (RIC) of the alleged defective pricing on 17 November 1988 and gave them 30 days to respond to the allegations. RIC responded by denying all but one of the allegations and requested an extension to 20 January 1989 so that they could prepare a detailed response. The PCO approved the extension. However, on 5 January 1989, Ogden Air Logistics Center was notified by the Defense Criminal Investigative Service (DCIS) that it should not proceed with negotiations for a settlement because of an ongoing criminal investigation. Ogden ALC was asked to desist from pursuing a settlement until this investigation was completed. Upon clearance from DCIS, Ogden Air Logistics Center will reactivate the case.

Combined Effects Munition

Question. The budget includes $136.6 million to produce 11,537 Combined Effects Munition (CEM) weapons. In last years conference report the Air Force was directed to maintain dual source competitive procurement of CEM in 1989 and to present and justify any future plan to down-select to a single producer. In February, we were informed that the Air Force intended to competitively down-select to one manufacturer in fiscal year 1990 and enter into a four year multiyear contract.

What is the basis for and justification of your decision?

Answer. As was indicated in the Air Force's February 6, 1989, letter to the House Appropriations Committee, the decision to competitively down-select to one manufacturer using a multiyear procurement resulted from an Office of the Secretary of Defense study conducted in the summer of 1988. The study concluded that substantial cost savings would accrue if CEM was procured at economic production rates for a single producer using a "winner take-all" competition.

Question. At the end of the proposed multiyear contract deliveries, the Air Force will have procured only fraction of its inventory objective. What are your plans for procuring CEM beyond fiscal year 1993?

Answer. No procurement for CEM is scheduled beyond fiscal year 1993.

Question. What are the details of the fiscal year 1989 CEM contracts which were awarded last February, including unit costs?

Answer. The Army's Single Manager for Conventional Ammunition (SCMA) made a split award to Honeywell and Aerojet Ordnance Company (AOC) for the FY 1989 procurement on February 15, 1989. AOC was awarded a quantity of 12904 (63%) at a unit cost of $11,249.89. Honeywell was awarded 7579 (37%) at a unit cost of $13,345.82. The average production unit cost is $12,026. The above costs exclude Government Furnished Materiel, i.e., explosive and armor plate, and engineering change orders.

Question. What unit costs are contemplated in the proposed multiyear contract?

Answer. The unit cost for the multiyear contract is estimated to be $13,576, including Government Furnished Materiel costs.

Question. The CEM's Tactical Munitions Dispenser (TMD) is also used for other weapons, including the sensor fuzed weapon which just enters production in fiscal year 1991. If you down-select to one prime contractor for CEM, will we be stuck with one vendor for the TMD instead of the two which we now have?

Answer. The Air Force will be acquiring two other munitions that use the TMD, namely, the Sensor Fuzed Weapon (SEW) and the Direct Airfield Attack Combined Munition (DAACM). Therefore, we believe that there will be sufficient quantities to maintain more than one TMD vendor in the production base.

Question. What consideration has been given to breaking out the TMD in order to buy in more economic quantities and retain competition?

Answer. Component breakout (CBO) of the Tactical Munitions Dispenser (TMD) was considered by the Army Single Manager for Conventional Amunition (SMCA) prior to the FY 1989 contract award and as part of their deliberations on outyear acquisition strategies. However, it was determined that CBO was undesirable because of the size and complexity of the program. Under the CBO concept, the government would assume the responsibility and risk for performance, rework of replacement and late deliveries. Under the current acquisition strategy which uses the Total System Performance Responsibility (TSPR) concept, the prime contractors are responsible for system integration and performance.

"BUDGET SCRUB" IN OTHER PROCUREMENT ACCOUNT

Question. What level of funds were "scrubbed" in the Other Procurement, Air Force Account, to reach the level included in the "Reagan" budget?

Answer. Taking into consideration the fact that FY 1990 had not been "scrubbed" to meet revised fiscal protections when the FY

1989 Amended Budget was submitted to Congress, the Other Procurement Account was subsequently reduced $3.2 billion between February 1988 and February 1989 in various phases of the DOD Planning, Programming, Budgeting process.

Question. What further reduction do you anticipate in that account in the current ongoing "budget scrub"?

Answer. Overall, Other Procurement, Air Force decreased $174 million between the Reagan and Bush budgets, from $8,735 million to $8,562 million. This adjustment includes net increases and decreases in all four Other Procurement budget programs.

NAVSTAR GLOBAL POSITIONING SYSTEM (GPS)

Question. The Navstar Global Positioning System (GPS) is a worldwide, three dimensional navigation system for military aircraft, ships, ground vehicles and ground personnel. The entire system consists of satellites, ground control stations and receiver sets. The GPS user equipment will be the Department of Defense's largest ever avionics buy. Approximately 27,000 user equipment sets will be procured by 1999 at a cost of over $4 billion. The FY 1990 budget request before the Committee of $11.4 million supports the acquisition of 531 receiver sets.

As part of the FY 1989 House Appropriations Report the committee directed the Air Force to examine which platforms could not accommodate baseline GPS user equipment due to size and space limitations and to assess the potential of new technologies such as embedded systems to provide GPS capability to those platforms.

How many types of platforms cannot accommodate existing GPS user equipment? Include all types of platforms.

Answer. The Air Force, in coordination with the other Services, conducted an assessment in late 1987 and early 1988 to address this issue. The results were briefed to the Services and to the Office of the Secretary of Defense in April 1988 as a GPS user equipment acquisition roadmap. They were also briefed to the Congressional staff in early 1989 and summarized in a letter to the House Appropriations Committee, Subcommittee on Defense, in February 1989. In the assessment, we identified 19 specific aircraft types (out of 138) which required other than current production user equipment. These included the AH-1, AH-64 and OH-58 Army helicopters; the UH-1, AH-1J/W, SH-2G/F, SH-3, MH-53, RH-53D, CH-46 and CH-53D/E Navy helicopters; the V-22, AV-8B and F/A-18 Navy aircraft; and the F-16B (Air Defense Fighter) and FB-111A Air Force aircraft.

Question. If an embedded approach is not feasible for these platforms, will a unique integration effort be required for each one?

Answer. No. In accordance with direction resulting from the user equipment assessment, the Air Force is initiating acquisition of smaller receivers through Non-Development Item (NDI) procurement methods. Working with the other Services, out intent is to obtain separate receivers which are less than half the size of the current standard airborne receivers yet which still provide commonality across as many platforms as possible. In addition, as noted in the assessment, the Navy is pursuing a specific embedded solution which will be common for the Navy helicopters identified in the previous answer. Such an embedded solution is not suitable for fixed-wing aircraft because of the variety of avionics equipment involved.

Question. Will the costs of GPS user equipment integration be funded by the Navstar program or by the individual platform programs involved?

Answer. Within the Air Force, the Navstar program funds user equipment integration for all platforms. For aircraft already in the Air Force inventory, integration is accomplished via a Class V modification program. For new, production aircraft which have been designed to accommodate GPS, integration involves installation of GPS user equipment during the aircraft production process.

Question. The Committee realizes that GPS integration costs are system dependent, but are estimates available as to how much an average integration will cost?

Answer. As the question indicates, there is no such thing as an "average" integration. GPS user equipment is extremely flexible and can be integrated to virtually any degree into aircraft avionics suites. The degree of integration is determined by individual platform operfational requirements. It is the driver of integration costs as it affects the changes needed to both aircraft software and hardware. While integration costs can be well estimated from the standpoint of the GPS user equipment itself, they can be very misleading when combined with the up-front, nonrecurring engineering costs and with the recurring non-GPS equipment costs on an individual platform. Due to the variation in these costs from platform to platform, there is no basis for an "average" integration cost number.

Significant oversight procedures have been put in place for the Air Force plan to integrate GPS into all operational aircraft, involving approximately eighty aircraft types. To control and provide oversight for this enormous operation, the Air Force has established a special two-tiered management structure for GPS integrations. The structure includes a field-level Integration Working Group (IWG) composed of members from the acquisition and logistics commands, which perform the integrations, and members from the using commands, which provide the operational requirements for effective use of the GPS signals. The IWG reports twice a year to a General Officer GPS Integration Coordinating Committee (ICC) at the Pentagon. The ICC reviews the status of the overall integration process from the perspectives of policy, priorities and cost and resolves problems affecting particular integrations which cannot be resolved at lower levels. A major part of that process involves looking for GPS integration commonalities which can reduce up-front engineering costs across aircraft types and for ways to combine different integrations to maximize the return from the visit of the aircraft to its depot. This structure has attracted considerable attention within the acquisition and logistics communities as a model for effective management of such major modification efforts. It is indicative of the serious attention the Air Force is paying to assure the successful implementation of GPS into Air Force aircraft.

CHEMICAL BIOLOGICAL DEFENSE PROGRAM

Question. This program is for procurement of chemical warfare defense equipment to increase survivability and enable Air Force units to sustain operations in a chemical warfare environment. The FY1990 budget request before the committee is for $70.5 million which funds items such as gas masks, collective protection systems, and chemical agent monitors. The MCU-2/P is the next generation gas mask being procured by the Air Force and Navy. The FY1990 budget request is $16.1 million for 74,123 masks.

What is the total Air Force inventory objective for the MCU-2/P mask?

Answer. The Air Force inventory objective for the MCU-2/P mask is 470,000 masks. The revised FY1990 budget request is for $56.5 million instead of the initial $70.5 budget request indicated above. Also, the mask budget request is for $12.8 million for 58,995 masks instead of the $16.1 million for 74,123 masks indicated above, which is the current FY1989 program.

Question. Of that total, what percentage constitutes the war reserve requirement?

Answer. None of the inventory objective is for war reserve material. The basis of issue for masks is one per person in or deployable to threat areas, plus an additional 10 percent of that issue for sizing, spares and shelter processing use.

Question. At what point will the complete changeover to the new mask occur?

Answer. The final funding year for MCU-2/P masks is planned for FY1993.

Question. According to Air Force budget justification material the unit cost of the MCU-2/P increased by 12 percent from FY1988 through FY1990. Can you explain the reason for the cost growth exhibited by the MCU-2/P mask?

Answer. The cost growth between FY1988 and FY1990 is 9 percent instead of 12 percent, which is the growth between FY1988 and FY1991. The growth is attributable to inflation and the fact that the FY1988 cost is an actual contract cost, while the FY1990 and FY1991 costs are based on estimates for contracts yet to be awarded.

Question. Describe testing efforts completed or planned, that determine the impact to ground crew operational effectiveness when wearing the masks.

Answer. The Air Force has conducted no tests on the impact of wear of the mask by itself, because Air Force personnel normally do not wear the mask without other protective gear. Instead, tests have dealt with the impact of wearing the full protective ensemble: mask, suit, gloves and boots. The results indicate considerable impact on operations is possible, depending on type of work, training and environmental conditions. The MCU-2/P reduces the impact because it affords better fit, visibility, and comfort. The Air Force plans further tests to verify guidelines on expected degradation and recommended work/rest cycles relating to wear of the ensemble.

OVER-THE-HORIZON BACKSCATTER RADAR (OTH-B)

Question. The Over-the-Horizon Backscatter Radar is to provide national commanders an early warning capability of an attack on North America from bombers and cruise missiles. The Air Force is in the process of building or planning to build four separate OTH-B systems—East Coast Radar System (ECRS), West Coast Radar System (WCRS), Alaskan Radar System (ARS), and Central Radar System (CRS) at an estimated cost of $2.7 billion including RDT&E, procurement, and military construction. The FY 1990 total budget request before the Committee is $297.9 million, of which $206.8 million is to be used for procurement of the second sector of the Alaskan Radar System (ARS).

According to the GAO, major delays in testing and changes in the Soviet threat have occurred which have affected the OTH-B program. The planned procurement of the second ARS sector with FY 1990 funds precedes operational test results from the West Coast Radar System (WCRS).

Given the unavailability of integrated test results prior to the planned ARS production award, do you believe the procurement of the second sector of the ARS poses unwarranted program risk?

Answer. First of all, there are several erroneous assumptions and assertions in the GAO report. For example, the total estimated cost of the planned OTH-B system, as reported in the 31 December, 1988 Selected Acquisition Report (SAR) is slightly less than $2 billion in "then-year" dollars. The "major delays in testing" referred to by the GAO occurred two years ago, due to software problems, and the new schedule negotiated with the prime contractor have been well briefed and understood by the Air Force, OSD, and the Congress. In fact, the software problem and slip were thoroughly briefed during deliberations on the FY 1988 President's Budget (PB), and the status of the program, including software development were thoroughly discussed during FY 1989 PB deliberations.

The change in the Soviet threat referred to by the GAO is the appearance of the cruise missile in the Soviet inventory. This new threat has been well known for several years, but does not affect the Alaskan Radar System. Assessment of OTH-B capability to detect and track cruise missiles and the development of system improvements to enhance the inherent capability are the purposes of the OTH-B Pre-planned Product Improvement (P^3I) program. Identified improvements are applicable as performance improvements for all planned OTH-B systems, will be implemented on each new system, and retrofitted if it makes sense to do so.

There is no additional risk associated with the planned procurement of either the first or second sector of the ARS prior to completion of IOT&E on the ECRS. The limited IOT&E that was conducted on the OTH-B Experimental Radar System (ERS) in 1981 proved that an OTH-B radar is capable of providing adequate and timely surveillance and demonstrated the early warning capability to support NORAD's Tactical Warning/Attack Assessment mission. The IOT&E to be conducted in early FY 1990 on the integrated three-sector OTH-B East Coast Radar System (ECRS) in Maine is important to prove the system will satisfy the operational concept; the early warning capability has already been proven. The ECRS has been operated by the using command since December 1987, and integrated three-sector operation has been underway since November 1988. Based on IOT&E of the ERS and over a year of limited operation of the ECRS by the using command, the definitive answers on OTH-B capability are already known. The Air Force does not expect any system changes to result from IOT&E. However, timely contract award does not preclude taking advantage of any lessons learned from IOT&E.

If the second sector is delayed, the cost of this system will incease. Because of the unique construction requirements in the Alaskan environment, the ARS is already the most expensive OTH-B system to date. It is likely that the production line will be interrupted, and construction crews may have to be reassembled for the second sector, both of which would be very costly. Those activities which will commence fairly immediately after contract award, such as site preparation, transmitter and receiver antenna array and support building construction, and construction of the operations center building, would not in any case be affected by IOT&E results. Additionally, such a delay would result in a slip of needed operational capability in an area of increasing Soviet activity. [CLERK'S NOTE.—Subsequent to the hearing, the Committee has been advised that the Air Force now requires both fiscal year 1989 and 1990 funds to complete procurement of the first sector of the Alaskan Radar System. Fiscal year 1990 funds originally budgeted for the acquisition of the second sector must now be utilized to cover a growth of over 100 percent in the cost of the first sector. This has resulted in at least a one year delay to the fielding of the second sector.]

Question. What plans does the Air Force have for the examination of operational test results from the East Coast Radar System before obligating FY 1990 funds?

Answer. The Air Force does not plan to wait until ECRS IOT&E is complete before obligating FY 1990 funds for the second sector of the ARS. However, the ARS contract will be structured so that any appropriate lessons learned from IOT&E can be incorporated into the ARS. Since the exact configuration of the ARS will not be final until completion of the Critical Design Review, which will not occur until the end of FY 1991, there is ample opportunity to include lessons learned from IOT&E, if required.

Question. In support of the FY 1989 budget request, the Air Force reported to the Committee that a competitive contracting approach would be used for the remainder of the OTH-B program. However, the Committee understands that the Air Force plans to solicit only the existing producer of the OTH-B for subsequent contract awards.

Can you explain the reason for this change in acquisition strategy?

Answer. The Air Force had planned to use a competitive approach for the remainder of the OTH-B program, and still plans to do so to the maximum extent possible. The acquisition strategy has changed only for the Alaskan Radar System (ARS) being procured in FY 1989 and FY 1990. The Air Force advertised its intent to competitively procure the ARS in the Commerce Business Daily (CBD) and received a positive response from only a single contractor, General Electric, who is the current producer of the OTH-B. Raytheon, producer of the Navy's Relocatable Over-the-Horizon

Radar (ROTH-R), specifically expressed their intent not to bid on the ARS. With only one prospective bidder, the Air Force was forced to change our acquisition strategy, and prepare for a sole-source procurement. Failure to do so would have resulted in unnecessary delays such as occurred in FY 1986, when the West Coast Radar System contract was not awarded until 1Q FY 1987 after Raytheon withdrew at the last minute. A second CBD announcement was published announcing the Air Force's intent to solicit only General Electric. The announcement also stated that any company desiring a copy of the Request for Proposal would be provided one, and that any bids submitted would be considered without prejudice.

Question. FY 1991 funds will provide for the procurement of the first sector of the Central Radar System (CRS). The primary justification for the CRS is to detect and track sea-launched cruise missiles. This capability for the OTH–B system will not be tested in a realistic operational environment until the completion of the West Coast Radar System (WCRS) planned for sometime in FY 1990.

The Committee understands that the likelihood of a Soviet first strike cruise missile attack is extremely low according to current threat assessments. Since the CRS is primarily for the detection of cruise missiles, why the urgency attached to its production?

Answer. It is not true that the primary justification for the CRS is to detect and track sea-launched cruise missiles. The primary justification for the Central Radar System is the same as for the East and West Coast Systems, that is, long-range, wide-area surveillance of approaches to North America in support of Tactical Warning/Attack Assessment. The primary operational requirement is to provide data that will support a determination by the National Command Authorities that the United States is under attack. A secondary justification is to detect and track cruise missiles, both air and sea launched, and larger air-to-surface missiles such as the AS–3 and AS–4.

Since the East Coast Radar System (ECRS) sector three became operable in September 1987, we have had the opportunity to monitor ———. The OTH–B has been called upon on several occasions ———. However, a large portion of the southeastern U.S. coastal air space and the entire Gulf of Mexico has no long-range surveillance. The threat exists today, and the CRS is intended to close the southern approaches to the U.S. in response to that threat.

It should also be noted that OTH–B, even in its basic ECRS configuration has significant capability against any aircraft large enough to be manned. It therefore will be capable of providing surveillance in support of drug interdiction activities.

Question. Would not prudent acquisition practices require satisfactory test results with regard to the CRS's primary mission before initiating production?

Answer. It is always prudent to determine that a system performs satisfactorily prior to initiating production, and that has been done with OTH–B. Since OTH–B's primary mission, including the CRS, is long-range, wide-area surveillance in support of NORAD's Tactical Warning/Attack Assessment mission, the system performance with regard to that mission is well known. The 1981 IOT&E, and the operation of the ECRS by the user since December 1987 have proven that OTH–B can perform its primary mission.

With regard to cruise missiles, they are clearly a tougher problem. We have made a lot of progress in developing performance improvements for OTH-B, and it has a ———.

Question. Does the Air Force have plans for confirming the OTH-B's performance against cruise missiles before committing the procurement of the CRS in FY 1991?

Answer. The Air Force has been working for several years to determine what level of capability against cruise missiles is required and to develop improvement to OTH-B and other systems that will contribute to meeting mission requirements. However, for the reasons stated, it is not necessary to demonstrate performance of a secondary mission capability to begin deployment of the CRS, when the capability to perform the primary mission is well known.

CARIBBEAN BASIN RADAR NETWORK (CBRN)

Question. $45.1 million is requested to continue procurement of the Caribbean Basin Radar Network (CBRN). The objective of the program is to provide a surveillance capability for attack warning, threat assessment, air traffic management and drugs/arms interdiction. When completed, how many different locations will be included in the Caribbean Basin Radar Network?

Answer. As currently programmed, the Caribbean Basin Radar Network (CBRN) will be composed of eight new radars/sites interconnected with five existing radars. Surveillance information from these thirteen radars will be provided to a Region Operations Center (ROC) at Howard AFB, PN as well as to a CONUS Command Center.

Question. How many sites have been funded thus far?

Answer. Through fiscal year 1989, a total of four new radar sites have been funded as well as the Howard AFB ROC and connectivity between it and the CONUS ROC.

Question. Provide for the record the current status of the agreements, with the individual countries involved, to locate the radars on their territory.

Answer. The following represents the current status of Host Nation Agreements (HNAs) completed on in negotiation: Completed HNAs: Semaphore Hill, Panama (CBRN Site 1); Dominican Republic (Site 2); Colombian Mainland and San Andres Island (Sites 3 and 4); and North Coast of Handuras (Site 5). Note the Semaphore Hill only required Host Nation to be notified because location is a U.S. defense site within the Panama Canal Zone. ———.

Question. Describe in general, and provide details for the record, on the enhancement to the U.S. drug interdiction effort that should be realized by completion of the Caribbean Basin Radar Network.

Answer. In general, the completion of the Caribbean Radar Network will enhance the U.S. drug interdiction effort by increasing the probability of detection, Interception, and apprehension of persons attempting to smuggle illegal drugs into the U.S. by air. Specifically, a network of radars in the Caribbean, tied through satellite communications to a central command facility, provides data to support law enforcement efforts against unlawful air activities. Moreover, current and planned Caribbean Basin Radar Network sites have been strategically located at key drug trans-shipment points to maximize air surveillance of drug traffic routes. Consequently, attempts to circumvent this radar network will require smugglers to use more fuel, larger aircraft, longer runways, and change modes of transportation more frequently. Each of which compounds the problems associated with bringing illegal drugs into the U.S. and increases smuggler exposure to law enforcement efforts in other areas.

Question. To what extent, if any, will the various host countries participate in the operation of these radars?

Answer. CBRN has been planned around contractor operation and maintenance at the radar sites (no military presence). The CBRN prime contractor (Westinghouse) is required to provide 98.5 percent availability of the radar data from each site. Host Nation participation is involved in initial site preparation (roads, water, power, etc.) as negotiated within each unique HNA. Host Nations are also recipients of CBRN surveillance data from their respective radar locations as well as international tracks of interest.

ELECTRONICS AND TELECOMMUNICATIONS SPARES AND REPAIR PARTS

Question. The Electronics and Telecommunications Spares and Repair Parts Program consists of initial and replenishment spares for all programs associated with Electronics and Communications portion of the Air Force Other Procurement account. The 1990 request before the Committee is $253.4 million which funds the acquisition of spare components to support normal equipment attrition, readiness rates, and wartime surge requirements. The Committee understands that the Spares and Repair parts account may be significantly underfunded and that certain telecommunication systems have spares parts to support only a peacetime usage rate.

To what extent is the Spares and Repair parts budget line underfunded?

Answer. Peacetime Operating Stocks are fully funded. However, Wartime Reserve Spares Kits are only funded at 18 percent and 36 percent for FY 1990/91, respectively, while initial spares are funded at 63 percent and 53 percent. Together, these shortages result in an estimated overall shortfall of $221 million in FY 1990 and $223 million in FY 1991.

Question. Can you identify currently fielded systems where the shortage of spare parts is deemed critical?

Answer. Using commands have identified isolated cases where fielded systems have been logistically unsupportable due to lack of adequate spares support. These systems included the AN/GRC-206 Communications Central, the AN/TRC-110 Terminal, AN/TRC-170 Radio, AN/TSC-60V(9) Terminal, the AN/TSC-100/94 SATCOM Terminal, and the AN/TSQ-111, CNCE.

Question. Why does this account suffer during the internal DOD budget process if indeed, it is so critical to maintaining the readiness of electronic and telecommunication systems?

Answer. In FY 1987 and FY 1988, the spares program was almost fully funded. There was a slight decline in funding in FY 1989 as obligation rates lagged targets. The major shortfall is in war reserve which was deferred, as in the aircraft spares program, due to affordability. Spares are considered crucial, and funding has increased in FY 1990 and FY 1991 commensurate with the growth of the total program.

RANGE IMPROVEMENTS EQUIPMENT

Question. The Range Improvement Program develops and procures equipment for Air Force ranges to support training/evaluation of air crews and operational testing of weapon systems and tactics under simulated combat conditions. A total of $115.8 million is requested for fiscal year 1990 for this program. The justification book states that "much of the current air crew training and testing of weapons/tactics is conducted in an environment that inadequately simulates the current threat".

Provide for the record the major deficiencies of the equipment at the test ranges.

Answer. ———.

Question. To what extent does training take place using range equipment which doesn't adequately "simulate the current threat"?

Answer. ———.

Question. The justification book states that "the application of available technology to enhance training range capabilities has severely lagged enemy advances in offensive and defensive capability". Has this lag been caused by budgetary constraints or is considerable time needed to develop the equipment to simulate the enemy threat?

Answer. This lag is a combination of both budgetary constraints and the length of time required to develop the simulated threat. ———.

Question. The budget for Range Improvement equipment has declined from a level of $175 million in fiscal year 1988 to a request of $115.8 million in fiscal year 1990.

What accounts for the decline in resources requested for this program?

Answer. In fiscal year 1988 Congress inserted funds for two programs not requested by the Air Force in that year:

	Millions
2 Ground jammers (AN/MLQ-T40)	$10
Alaskan ACMI	25
Total	35

An additional $18 million represents a one/time investment in the Strategic Training Route Complex (STRC) which provides the infrastructure needed to develop capability to train SAC air crews. Without these programs the budget would have been $122 million ($175—$35—$18=$122) vice $175 million.

Question. Considering the many billions of dollars expended on the procurement of aircraft each year by the Air Force, shouldn't the procurement of equipment of provide realistic training for the pilots of those aircraft be a very high priority?

Answer. The procurement of Range Improvement Equipment has a very high priority.

Question. When the threat changes, to what extent can you modify existing range equipment to simulate new threats, as opposed to buying whole new sets of equipment?

Answer. Whenever possible, the Air Force designs its threat emitters so that they can be modified as new intelligence information becomes available. ———. Five of these systems have been delivered to the field with 15 more planned. ———. It is also adaptive to accept modular changes as future requirements dictate. The Air Force is on contract to buy 15 ——— systems.

Question. Included in the request is $27.8 million for the procurement of nine Unmanned Threat Emitters UMTE which simulate various enemy target tracking radars. The procurement profile for the UMTE shows wide fluctuations: 1988, 4; 1989, 0; 1990, 9; and 1991, 2.

What accounts for the erratic annual changes in quantities for this item?

Answer. The "erratic annual changes" from 1989 to 1990 procurements represents TAC's desire to buy other priority items within the Range Improvements Program for that year. The structuring of the UMTE contract permits this flexibility.

MEDICAL AND DENTAL EQUIPMENT

Question. A total of $124.6 million is requested for medical and dental equipment. This is an increase of $15 million from the current fiscal year. What is the current shortfall of medical equipment for fixed Air Force Facilities?

Answer. Going into FY 1989 our shortfall exceeded $40 million. Even with FY 1989 funding of $62.8 million, we expect the shortfall to exceed $72 million by the end of FY 1989.

Question. To what degree will the shortfall be met by funding of the Fiscal Year 1990 request?

Answer. Going into FY 1990 we expect the shortfall to exceed $72 million and project new requirements of about $66 million for a total FY 1990 requirement of $138 million. Given the current FY 1990 funding request of $57 million for this equipment, the requirement will only be funded at 41 percent. We project the backlog to exceed $81 million by the end of FY 1990.

Question. Within the funds requested for this medical equipment, $52.1 million is for War Reserve Material. Provide for the record the inventory objective for the WRM medical equipment, the present status of the inventory, and the projected timeframe of when the inventory objective should be attained.

Answer. The inventory objective I/O for WRM medical equipment is $599.1 million based on current mission requirements and planning factors.

Through FY 1989, equipment totalling $217.5 million will have been procured for these WRM requirements. The service request includes $52.1 million and $23.3 million for WRM equipment in FY 1990 and FY 1991 respectively. $105.3 million is programmed FY 1992 through FY 1994, with a balance of $200.9 million projected to be required beyond FY 1994 to attain the program inventory objective. Below is a detailed breakout of equipment requirements.

Asset	Inv. Object	Fiscal year—			
		1989 Inv. A/o (quantity)	1990 Pgm (quantity)	1991 Pgm (quantity)	1992 and out year (quantity)
500 Bed Contingency, Hospital	33	24			6
250 Bed contingency Hospital	3	3			

Asset	Inv. Object	Fiscal year— 1989 Inv. A/o (quantity)	1990 Pgm (quantity)	1991 Pgm (quantity)	1992 and out year (quantity)
Survivable Collective Protection Shelter Medical (SCPS–M—)	149	30	15	9	46
50 Bed Air Transportable Hospitals (ATH)	26	22	2	1	
2nd Echelon Assemblages	140	76	29	4	
250 Bed Aeromedical Staging Flights (ASF)	21	19			
25 Bed Mobille ASF	30	30			
Hospital/Surgical Expansion Package	12	12			
Civilian Reserve Fleet Air Evacuation Sets	127	0	94	33	
Transportable Blood Transshipment Center (TBTC)	23	0		23	
Resuscitative Fluids Production and Reconstitution system (REFLUPS)	162	0			

DEFENSE SUPPORT PROGRAM (DSP)

Question. The Defense Support Program (DSP) is a satellite system which detects the launching of ballistic missiles. Funds are requested in various accounts for the DSP system, including $96.3 million in Other Procurement, Air Force. A total of $67.2 million is requested for Ground Station Upgrade for the DSP system. What deficiencies exist in the present ground station equipment?

Answer. We are dealing with two different sets of problems: one in the fixed ground stations and a second set in the mobiles. In the fixed ground stations the problem is one of equipment obsolescence in that portion of the station known as the Satellite Readout Station, or SRS. The SRS is that suite of electronic/electrical equipment between the antenna and the data reduction computers. It consists primarily of signal conditioning equipment, data recorders, and backup commanding for the satellite. This equipment is part of the original ground station installed in the early 1970s and has never been replaced. The equipment is obsolete, no longer manufactured, and in some cases the original manufacturer is no longer in business. A 1985 message from Air Force Logistics Command to Air Force Space Command stated that the "continuous aging and obsolescence of the GKC–1 (the main part of the Satellite Readout Station)" was a major item of maintenance concern and "the increasingly difficult and costly logistics actions required to support it demand that the community exert all possible effort to replace it with state-of-the art, fully supportable equipment." In 1988, the operating location in ——— warned its headquarters (Air Force Space Command) that the facility did not meet the EMP survivability requirements. Modification to correct the situation is "well beyond the site's organic capability . . . the SRS upgrade appears to be the only project intended to correct the problem." Numerous examples of specific key pieces of equipment that are extremely difficult and expensive to maintain could be cited. Some of this equipment is actually repaired only by the senior enlisted staff at the sites because of the lack of commercial capability to maintain such obsolescent equipment. The SRS is the only part of the ground station that has not been modernized since the DSP system became operational.

The funding requested for the mobile systems completes the compatibility upgrade to permit support of the new generation of DSP satellites. It provides for the necessary training, technical manuals, pre-operational spares, peculiar support equipment, and resolution of service deficiency reports.

Question. Considering that the the DSP is such a high priority program which would provide early warning of a ballistic missile attack, why haven't these deficiencies been addressed earlier?

Answer. Replacement of obsolete equipment in a system which utilizes electronic and computerized equipment is an ongoing effort. The Air Force has recognized the necessity to replace the SRS equipment for the last several years, but budget priorities have forced its delay. We are rapidly approaching a critical maintenance/operational situation which can no longer be postponed. In effect, the SRS equipment replacement has risen to the top levels of the budget priorities.

Question. Provide for the record the details of what enhancements to the DSP system will be realized in the Ground Station Upgrade effort.

Answer. No "capability enhancements" will be realized with the SRS upgrade. In this case, "upgrade" is a misnomer; replacement or modernization are better descriptive terms. This effort is a maintainability issue caused by age of the equipment and the difficulty of obtaining spare parts.

Question. What is the total cost of the Ground Station Upgrade?

Answer. The total cost of the Satellite Readout Station Upgrade is $84.8 million to replace five sets of equipment at three sites.

Question. Will similar upgrades be incorporated into the DSP Mobile Ground Terminals?

Answer. No. Although the mobile stations serve a similar function as the fixed ground stations, their equipment is much newer and somewhat different.

SECURE TELEPHONE UNIT (STU-III)

Question. The STU-III Telephone provides secure voice and data transmission for all Defense agencies involved in the communication of classified material. The original DOD plan called for the procurement of 1.2 million STU-III telephone units. The Committee now understands that this figure may be as low as 200,000 units. Of this total the Air Force is planning to procure approximately 63,000 units. The FY 1990 budget request before the Committee of $8.4 million and $2.5 million in FY 1991 funds 46 percent of the Air Force requirement. For the record, state the total inventory objective for the STU-III.

Answer. Air Force STU-III inventory objective has been refined and stands at 50,342 terminals.

Question. Has this figure changed from the original Air Force validated requirement?

Answer. Yes. The original Air Force validated requirement was 77,300 STU-III terminals.

Question. For the record, please explain the rationale behind the determination of the inventory objective.

Answer. The Air Force STU-III inventory objective is to provide secure telephones within reasonable proximity (office or workplace) based on mission requirement. Air Force units with more sensitive missions involving daily classified discussions will have more STU-IIIs than Air Force units with routine missions.

MILSTAR COMMUNICATIONS SATELLITE

Question. The MILSTAR Satellite Communications System is a joint service program to develop and procure the MILSTAR Satellite, the mission control segment, and MILSTAR communications terminals. The first MILSTAR satellite is scheduled for launch in ———. According to the GAO, the Air Force prime contractor has experienced significant hardware and software problems that have resulted in schedule slippages for the terminal program. Provide for the record the current contractual status of the terminal program.

Answer. The Fixed Price Incentive Fee contract is valued at about $455 million with a 50/50 share to ceiling. Government liability is limited to approximately $45 million.

With respect to the GAO comment, the Air Force, in FY 1987, restructured the terminal program placing emphasis on milestones critical to program success. This restructure stabilized development and aligned the Low Rate Initial Production (LRIP) effort to support fielding terminals for the first launch.

With the restructure in place, OSD and the Air Force conducted a series of independent reviews prior to approving LRIP: Independent Technical Assessment, Independent Cost Analysis, Independent Logistic Assessment, Production Acquisition Strategy Board, Production Readiness Reviews, manpower estimates and an Early Operational Assessment. Having successfully completed these reviews the Defense Acquisition Board approved the program entering LRIP.

Question. Does the current budget request support the acquisition of MILSTAR Terminals in a manner consistent with the MILSTAR satellite launch schedule?

Answer. The Air Force terminal production and installation schedule is properly phased to support the launch schedule. We will field the terminals according to the following priority: National Command Authority, Commanders-in-Chief of Unified and Specified Commands, Attack Warning/Attack Assessment, and Satellite Mission Control, etc. Fielding these 159 terminals by FY 1995 provides connectivity for the highest priority users consistent with satellite constellation buildup.

Question. Please discuss the status of the current Air Force test program.

Answer. Line Replaceable Unit performance and environment qualification is essentially complete. Remaining tasks involve correction and retest of minor software deficiencies discovered during the initial testing. TEMPEST, Electromagnetic Compatibility, Survivability/Vulnerability and human factors testing is approximately 70 percent complete. No major hardware or software problems have been discovered. All testing is scheduled to be completed by December 1989

Terminal level performance qualification testing is on schedule for September 1989 through February 1990. Terminal to payload compatibility testing is approximately 90 percent complete. We have successfully demonstrated waveform, channelization, data rates, acquisition, and time tracking for Extremely High Frequency (EHF), Super High Frequency (SHF), and Ultra High Frequency (UHF) links as well as all protocols except reportback and crossbanding which will be demonstrated in June 1989.

Triservice interoperability waveform, crypto, end-to-end protocols, coding, interleaving, and input/output device testing are complete. Terminal flight testing began in October 1988 on the C–18 testbed aircraft. Ground and airborne testing consisting of end-to-end protocols, crypto, waveform compatibility, coding, interleaving, and input/output device operation has been successfully demonstrated via the on-orbit Fleet Satellite (FLTSAT) EHF Package (FEP) satellite and the MILSTAR Design Verification Model (DVM) communications payload—verifying end-to-end communications capability and compatibility with the MILSTAR waveform possessed by FEP. Additionally, end-to-end terminal operation was demonstrated utilizing Air Force Satellite Communications (AFSATCOM) narrowband, wide-band, Time Division Multiplexed (TDM), and Single Channel Transponder (SCT) modes via the AFSATCOM, FLTSAT, and Defense Satellite Communications System (DSCS) satellites. Testing is also planned for FY 1989 through FY 1992 to verify specification limits and operation with the MILSTAR satellite. Lastly, testing is scheduled for August 1989, FY 1990, and FY 1991 to demonstrate additional data rate/interleaver combinations and operation with the MILSTAR satellite.

[CLERK'S NOTE.—End of questions submitted for the record.]

THURSDAY, MARCH 9, 1989.

MARINE CORPS PROCUREMENT/RESEARCH AND DEVELOPMENT

WITNESSES

MAJ. GEN. R. "M" FRANKLIN, COMMANDING GENERAL, MARINE CORPS RESEARCH, DEVELOPMENT, AND ACQUISITION COMMAND

RICHARD L. RUMPF, PRINCIPAL DEPUTY ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH, ENGINEERING AND SYSTEM, DEPARTMENT OF THE NAVY

MOTION TO CLOSE

Mr. MURTHA. The committee will come to order.

Mr. Sabo?

Mr. SABO. I move that the hearing today, March 9, 1989, and those portions of the hearings scheduled for March 14, March 15, March 16, March 21, and March 22, which involve classified material, be held in executive session because of the classification of the material to be discussed.

In addition, I move that the transcripts and related materials developed in the intelligence hearing be handled in accordance with the Appropriations Committee's special interim procedures for protection of intelligence information.

Mr. MURTHA. The clerk will call the roll.

(The clerk proceeded to call the roll.)

Mr. MURTHA. Madam Reporter, let the record show that on this vote Mr. Murtha, Mr. AuCoin, Mr. Sabo, Mr. McDade, Mr. Young, and Mr. Miller voted aye.

Six Members having voted in the affirmative, this hearing is now closed.

INTRODUCTION

Mr. MURTHA. This morning, the Committee considers the Procurement, Marine Corps budget. This appropriation funds a wide assortment of hardware including ammunition, weapons and tracked combat vehicles, missiles, electronic and telecommunication equipment, and other support equipment. In addition, this hearing will consider the Marine Corps portion of the Navy's Research, Development, Test and Evaluation appropriation. This is the first time that these two programs have been considered together in the same hearing by this Committee.

The principal witness is Major General R. "M" Franklin, Commanding General, Marine Corps Research, Development, and Acquisition command. He is accompanied by Mr. Richard Rumpf, Principal Deputy Assistant Secretary of the Navy for Research, Engineering, and Systems. Gentlemen, we welcome you back to the Committee. We will insert both your procurement and your research and development statements in the record. You may summarize them and then we will proceed to questions.

Mr. Rumpf.

SUMMARY STATEMENT OF MR. RUMPF

Mr. **RUMPF**. Good morning, Mr. Chairman and gentlemen.

It is a pleasure for Major General Franklin and I to be with you today.

My remarks will be very brief, more in the way of introductory remarks to General Franklin's comments, and subsequently to your questions, which we would hope to field in the entirety.

General Franklin and I are integral members of a streamlined acquisition process responding to the Under Secretary of the Navy, Mr. Garrett, as the Department of the Navy's acquisition executive, and as such, General Franklin will be briefing you today on the programs of interest to you and this committee.

Marine Corps technology development is critical to meeting our national needs and commitments and while training and preparation for our Marine Corps warriors is paramount, development and rapid fielding of reliable, effective weapon systems for these warriors is essential to maintaining the rapid/action posture of our Marine Corps.

We focus on many joint service efforts and specifically on nondevelopmental items to leverage our research and development investments.

Historically, that investment has averaged two to three percent of the Department of the Navy's research, development, test, and evaluation budget.

We must protect that future capability for our warriors who are first in harm's way with continuous fielding of reliable effective weapons sensors and communications.

Therefore, we seek your support for our fiscal year 1990-91 budget request.

With that, Mr. Chairman, I would like to turn the floor over to Major General Franklin.

Mr. **MURTHA**. General Franklin.

SUMMARY STATEMENT OF GENERAL FRANKLIN

General **FRANKLIN**. Mr. Chairman, it is a privilege to be back here. I have had the opportunity to be here four years in a row to talk about R&D and two years to talk about PMC, and this is a hallmark hearing in that we get to talk about both and I only have to come once. I brought Dick along as my Navy potted palm. I am usually the potted palm. I would like to begin by addressing the R&D side of the Marine Corps, and proceed a little bit to PMC.

As you know, the Marine Corps has always been one of those services that responded very quickly to changes in the threat.

Historically in the late twenties and thirties, we had a small team of people who went through the Pacific and saw the islands being fortified. We went back to Quantico and perfected doctrine training, tactics and equipment for amphibious assault. In 1945 when the atomic bomb decimated a group of ships sitting in the lagoon, everyone said the amphibious assault was finished. The Marine Corps hopped on a new technology, the helicopter, we formed HMX at Quantico and we invented vertical envelopment. In Korea in the fifties, we did our first helicopter assault using HRS–1s that carry four people. That was the beginning of vertical envelopment. In the seventies, we noticed that the threat was moving into little tin boxes supported by bigger tin boxes and straight-leg infantry was disappearing from the threat forces. That meant that the Marine and the soldier on the ground needed support quickly; in other words, his close-air support. The most demanding thing was response time. An airfield 200 miles away is not quick response, so the Marines jumped on the vertical V–STOL Harrier. We stood alone in that and with the help of the Congress, we brought the Harrier into reality. We have a history of being innovative.

As we are looking into the next decade and the 21st century, we see now an enemy that can rapidly acquire the equivalent of Tomahawk, Harpoon, and Hellfire, and shore-based missiles that can bring ships in harm's way. So our belief is that the amphibious assault of the future will be what we call over-the-horizon.

We do not perceive that capital ships should be brought into harm's way by bringing them in visual view of the beach. If they are going to be targeted, we should make the other fellow come out electronically and target us. We would like to start the assault from 200 miles off the beach. With the Osprey, we can do that.

At 50 miles, we launch the LCACs; as we approach to 30 miles, we launch the amphibious tractor. In this budget, you will see the first tail of that program: the AAA program.

We also see a threat of scatterable mines in the shallow water. The only time the fellow is going to get a look at us is in the last few hours of the operation, and we feel that he has that capability. In the Third World in low-intensity conflicts, the threat is a poor man's weapon, mines and booby traps. Seventy percent of casualties in Vietnam were due to mines and booby traps. So in the low-intensity spectrum, we feel that mine warfare should be addressed. Thirteen percent of the budget is addressed to countermine warfare.

In the 1990–91 budget, we buy out some major weapon systems. The M1A1 tank is bought out in 1991. Our Hawk missile and Stinger missiles are bought out. And probably the most important thing that we have left to do in the 1990–91 era and a couple of years after that will be to get our digital communications backbone fully established. Bits and pieces are being manufactured now. We need to get out of the analog world and into the digital world where we can pass data and not more of this "say again all after," because that will be a magnet for incoming rounds.

Those are our high-priority items. We are ready for your questions.

Mr. **Murtha**. Thank you.

[The prepared statements of General Franklin follow:]

PREPARED STATEMENT OF MAJOR GENERAL R. "M" FRANKLIN
COMMANDING GENERAL
MARINE CORPS RESEARCH, DEVELOPMENT, AND ACQUISITION COMMAND

PROCUREMENT, MARINE CORPS

I. INTRODUCTION

Mr. Chairman, distinguished members of the Committee, it is indeed a pleasure to appear before you and present the Marine Corps's fiscal year 1990/1991 Procurement, Marine Corps (PMC) budget request. Last year you approved $1.3 billion for the fiscal year 1989 PMC budget. This year our fiscal year 1990/1991 budget request is $1.2 billion and $1.4 billion respectively.

It has become quite evident to all of us in government that we are once again going to have to do more with less. Accordingly, our fiscal year 1990 Procurement Budget request has been trimmed to the minimum level based on requirements and essential combat capability improvements.

Last year we took positive actions to ensure that the Marine Corps will provide adequate forces to meet our requirements in a cost effective way. Specifically, we completed the reorganization between Headquarters, Marine Corps and the former Marine Corps Development and Education Center at Quantico, Virginia. Now fully operational, the new Marine Corps Combat Development Command (MCCDC) develops Marine Corps concepts and evaluates their implementation in the Fleet Marine Force, in addition to defining all requirements.

We also completed the establishment of the Marine Corps Research, Development, and Acquisition Command (MCRDAC). This organization integrates the weapons systems acquisition process from research and development, through procurement, to fielding, under the direction of individual program managers who report directly to me. This organizational structure is fully compatible with the requirements of the Goldwater-Nichols Act and the Department of the Navy's organization for acquisition.

II. GOALS OF THE 1990s

Prior to the 1980s, the Marine Corps was in desperate need of new equipment and modernizing with new capabilities. On-hand equipment was either post-Korea or Vietnam vintage and was either obsolete or technologically deficient.

Thanks to your support we have made significant progress in the 1980s, are comprised of better people, and outfitted with more modern arms and equipment than ever before. We plan to build on this strong foundation of enhanced readiness, increased sustainability, adequate force structure, and modernization. For example, our troops now have modern trucks, they have night sights which enable them to see 24 hours a day, they utilize modern weapons platforms, they fire more accurate and maintainable individual weapons, and they can communicate better among themselves and achieve greater interoperability with the other services. Additionally, our missiles can more adequately counter the threats of air and armor, and our ammunition sustainability substantially increased from the extremely low level of the pre-1980s.

With your continued support, the Marine Corps will continue to maintain a high state of readiness, sustainability, and modernization into the 1990s. To do this, we must complete our procurement of the M1A1 Tank, the MK-19 machine gun, TOW missiles, Position Location Reporting System (PLRS), Tactical Air Operations Module (TAOM), various engineer equipment, and upgrades of communication equipment, weapons, combat vehicles, and missiles via modification kit and product improvement programs (PIP). We must also finish acquisition of our communications digital backbone which includes the Unit Level Circuit Switch (ULCS) and Vehicle Mounted Radios (AN/TRC-170 and AN/MRC-139). Additionally, procurement of our tactical remote sensor system and other intelligence gathering and analysis capability remains a priority.

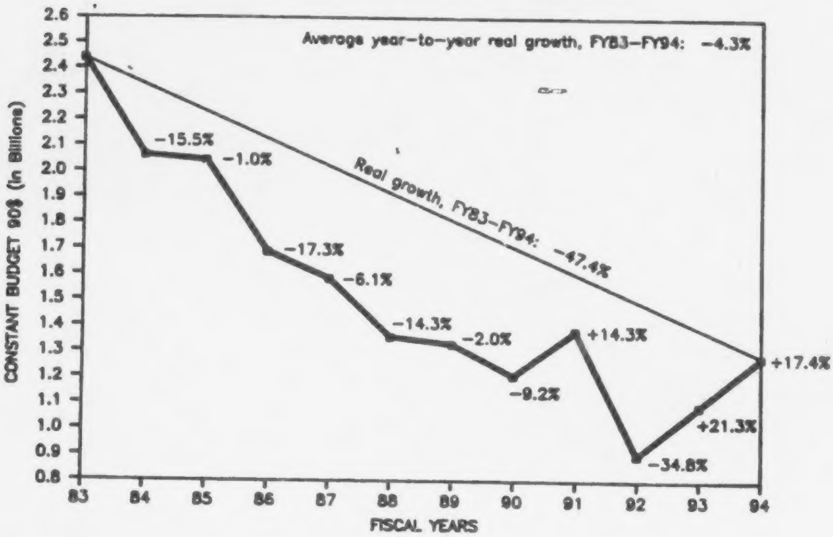
However, the job is not yet done. There are still some efforts we must complete. In the 1990s, we must finish our conversion to digital, secure, jam-proof, switching and transmission equipment. We must fully achieve our over-the-horizon capabilities, launch our new Advanced Amphibious Assault (AAA) program, develop a medium anti-tank missile, bring on-line the assault gun and air defense variants of the Light Armored Vehicle, and develop better anti-air capability with multi-spectral sensors. We must also enhance tactical mobility to include a new combat excavator tractor and field new mine and countermine systems, assault breaching equipment for explosive/non-explosive obstacles, and assault bridging. Improvement of chemical, biological, and radiological defense technologies as well as directed energy countermeasures are also included in our goals for the 1990s.

III. REAL PROGRAM GROWTH

We know that current fiscal realities require sacrifice and we are prepared for this. However, the following chart is presented to show, in a graphic way, the slow and incremental erosion of the Marine Corps investment account. As you know, the Marine Corps of all the services can least afford continued, uninterrupted declines.

The below chart shows, in constant fiscal year 1990 dollars, the year-to-year, largely negative, growth in the PMC account. This negative growth has averaged -4.3% annually. This latter statistic says, in effect, that we lost or will lose an average of 4.3% of PMC programming dollars each year from fiscal year 1983 to fiscal year 1994. Finally, the chart shows a real program decrease from fiscal year 1983 to fiscal year 1994 of 47.4%. This latter figure was derived by comparing fiscal year 1983 to fiscal year 1994 in constant fiscal year 1990 dollars ignoring any intermediate perturbations. It is used primarily as an illustration that the Marine Corps's investment appropriation has been and continues to move in a progressively negative direction in real terms.

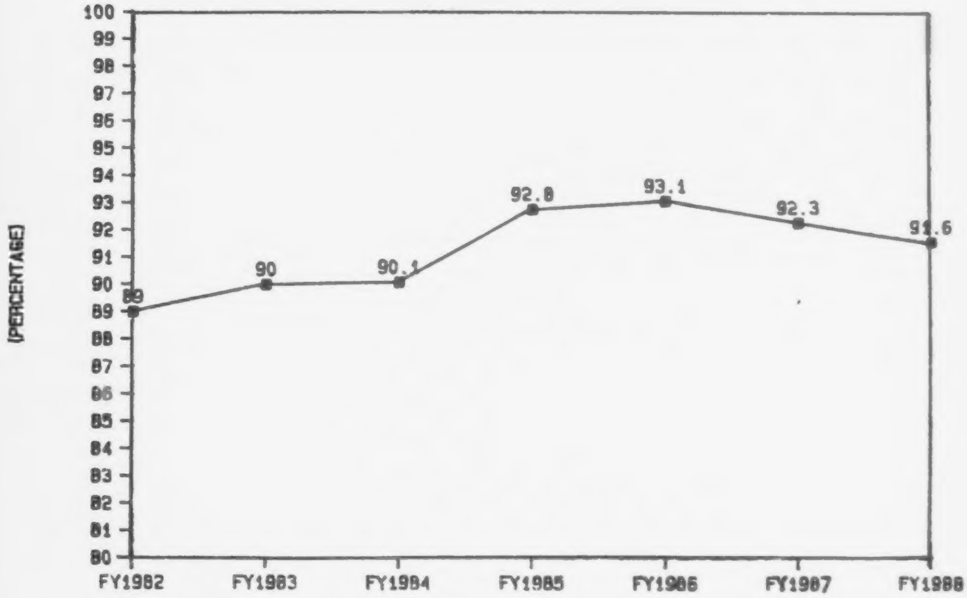
REAL PROGRAM GROWTH



IV. READINESS

While the Marine Corps has made significant strides in improving readiness, recent budgets may contribute to some erosion in the near term. Materiel readiness, which is the sub-element of total readiness that is directly affected by procurement, consists of two fundamental components: the inventories of equipment and supplies on-hand related to wartime requirements, and the condition and ability of our hardware to perform its mission. We track our materiel readiness by focusing on 238 principal end items that fall into every type of commodity area. The following chart depicts our average quarterly materiel readiness rates of the past seven years. It shows a slight decline over the last two fiscal years. This latter trend must be reversed in the near future or modernization and sustainability will be progressively eroded. The Marine Corps will make every effort in the future to maintain readiness at all cost.

MATERIEL READINESS



V. PROGRAM OVERVIEW

To provide a quick overview of our proposed fiscal year 1990/1991 budget, the following charts show the major fiscal year 1990/1991 programs, the new starts and restarts in these years, the programs we fully or substantially complete in fiscal years 1989/1990/1991, and a review of our pre-positioning programs.

A. MAJOR PROGRAMS
(DOLLARS IN MILLIONS)

ITEM	FY 90	FY 91
AMMUNITION	222	287
M1A1 TANK	517	653
AAV7A1 PIP	13	18
VEH MTD RADIOS	43	53
ULCS	48	31
PLRS	60	27
TAOM	47	41
ADP	23	17
SHELTERS	14	15
CONTAINERS	12	15
SPARES	61	61
OTHER	148	197
TOTAL	1,208	1,415

B. NEW STARTS/RESTARTS
(DOLLARS IN MILLIONS)

ITEM	FY 1990	FY 1991
NEW STARTS		
120MM APFSDS-T	12.0	13.1
120MM TPCSDS-T	9.6	18.6
M864 PROJ. 155MM, DP, ICM	5.9	9.1
M732A2 FUZE, PROX.	0	18.1
XM762 FUZE, ELECT. TIME	0	9.9
XM767 FUZE, ELECT. TIME	0	3.3
AN/MRC-139 RADIO	9.6	20.2
AN/TRC-170 RADIO	32.8	32.9
THERMAL IMAGING EQUIP.	0	3.7
SUBTOTAL	69.9	128.9
RESTARTS		
M106 PROJ. 8 INCH, HE	0	17.4
M107 PROJ. 155MM, HE	38.0	0
155MM CHG, PROP, GREEN BAG	1.9	4.5
M739A1 FUZE, PD	5.3	1.6
50 CAL. MACHINE GUN	0	4.1
SWEEP GENERATOR	3.2	3.6
SPECTRUM ANALYZER	4.1	0
M876 MAINTENANCE TRUCK	0	4.9
DRY CHEMICAL FIRE EXTIN.	3.1	2.1
SUBTOTAL	55.6	38.2
TOTAL	125.5	167.1

C. PROGRAM COMPLETIONS

FY 1989 COMPLETIONS

9MM HANDGUN
HAWK MISSILE
STINGER MISSILE
DRAGON II PIP
MCATES
STE/ICE
TACTICAL RECEIVER SET
RADAR TEST SET
LOGISTIC VEH SYSTEM
FORKLIFTS
BATH SHOWER UNIT
FUEL, WATER MODULES

FY 1990 COMPLETIONS

SQUAD AUTO WEAPON
SPECTRUM ANALYZER
LIGHT CRANE

FY 1991 COMPLETIONS

SWEEP GENERATOR
TOPO SURVEY EQUIP.
PLRS
MAINTENANCE TRUCK

D. PRE-POSITIONING PROGRAMS

Our three Maritime Pre-positioning Ships (MPS) squadrons were fully deployed in July 1986 and in May 1989 will have completed one full maintenance cycle. Our second cycle will begin in June 1989 with a scheduled completion date of April 1991. With regard to our Norway Pre-positioning Program, we will attain initial operational capability in December 1989. In-rock storage areas were completed and dedicated for Marine Corps use in September 1988. The only remaining equipment shortfalls include some material handling equipment and Navy funded aviation ordnance.

Of course, the equipment in the MPS and Norway inventory will require continuous modernization and upgrade to reflect advances in technology and military doctrine.

VI. DISCUSSION BY BUDGET ACTIVITY

AMMUNITION

Historically, ammunition has accounted for about 30% of our procurement budget. This year, however, approximately 18% is dedicated to ammunition. The fiscal year 1990 and 1991 budget request reflects a stretch out of our acquisition objectives across the board, especially in the area of preferred munitions.

In fiscal year 1988 we were able to put 54% of our ammunition into the Pre-positioned War Reserve (PWR) inventory and use 46% for training including both live and dummy rounds. In fiscal year 1989, the percentages will be approximately 50% in each category. In fiscal 1990, however, 48% of our ammunition procurements will be placed in the PWR inventory and 52% will be consumed in training. This is due to our increased emphasis on realistic combat and Marine battle skills training which focuses heavily on extensive firing of individual and crew-served weapons. Another point to note is that we are buying newer, more lethal rounds for some advanced weapon systems. These rounds are more expensive. For example, the 66mm light anti-armor weapon (LAAW) replacement cost was $155 in fiscal year 1986, but we will buy the new light anti-armor weapon (AT-4) for $849 in fiscal year 1990. Also, the old 81mm mortar round cost $89 in fiscal year 1986 and the new advanced round costs $263 in fiscal year 1990. (All cost comparisons are in constant fiscal year 1990 dollars.)

WEAPONS AND COMBAT VEHICLES

The procurement of the M1A1 Main Battle Tank (MBT) is 43 percent of the fiscal year 1990 budget request or $516.6 million. This request will enable us to procure 155 common, Block I configured M1A1 tanks. The fiscal year 1991 budget request contains $653.4 million or 46 percent of the budget to procure 255 M1A1 tanks. Total tank procurement is 476 tanks.

The M1A1 common tank is an improved version of the M1 MBT which includes a 120MM smoothbore gun, a NBC overpressure protection system, an improved armor package, a deep water fording kit, Position Location Reporting System (PLRS) capability, and enhanced ship tie-downs. The M1A1 provides protection against a wide range of current and future weapon systems and enhances supportability and interoperability between us and the U.S. Army.

We also continue our Product Improvement Program (PIP) of the Assault Amphibious Vehicle (AAV) in fiscal years 1990/1991. These planned product improvements and modifications will improve the reliability, battlefield survivability and combat capability of our fleet of AAVs. During this time period we will complete the Upgunned Weapons Station, Bow Plane, and Automatic Fire Sensing and Suppression System, and continue to improve the AAV with the addition of an Improved Transmission and Enhanced Applique Armor Kits.

MISSILES

In fiscal year 1988, we signed a four year multiyear contract to procure additional HAWK missiles. The Marine Corps will fund for fiscal years 1988 and 1989, while the U.S. Army will fund for fiscal years 1990 and 1991.

Also, we substantially complete procurement of the Stinger missile and the Generation II Dragon PIP. I want to thank you for the additional $20.0 million you gave us in fiscal year 1989 to procure, restore and retrofit Dragon missiles. As a follow-on to the Generation II Dragon, some type of improved medium anti-tank missile will be required in the 1992 time frame. We will come to you for approval before we move into procurement on this missile.

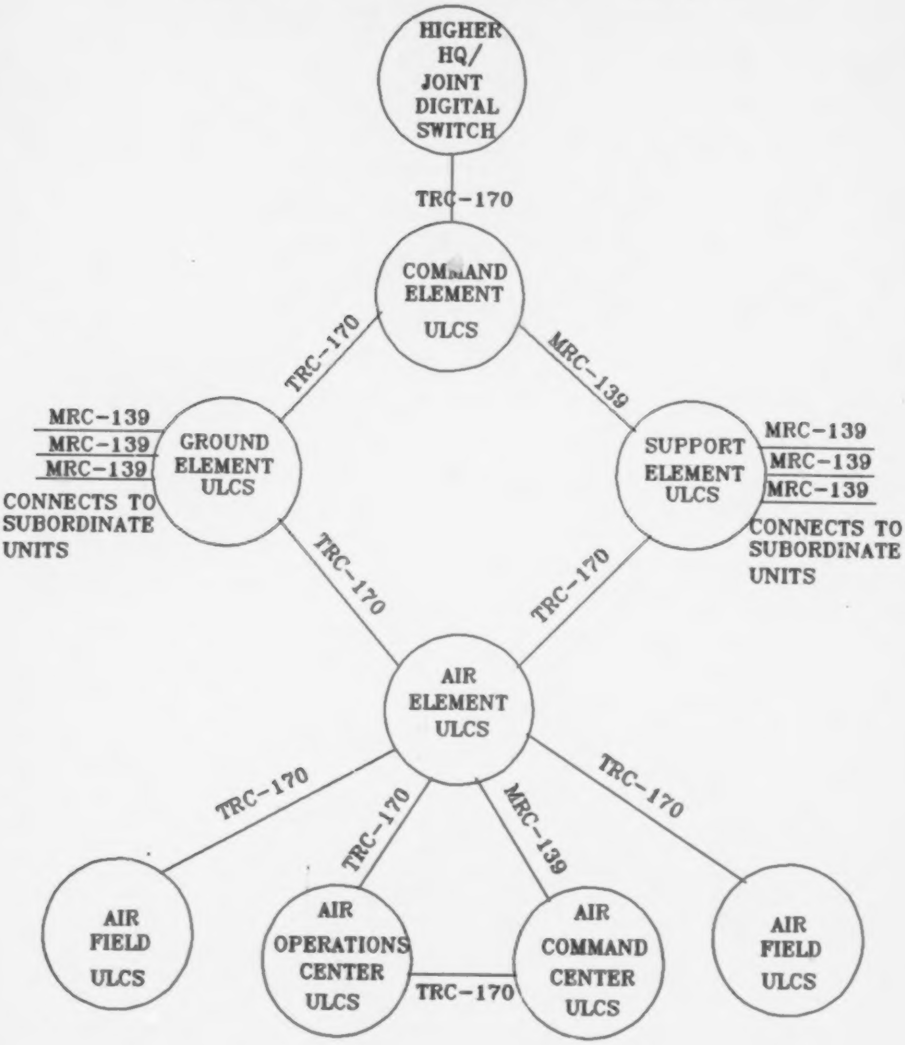
Since fiscal year 1986 we have been procuring TOW-2A missiles. In fiscal year 1990 we start buying TOW-2B missiles. Although the total inventory of TOW missiles is shown in the budget backup books, only the TOW-2A and TOW-2B are counted against the acquisition objective. We do this because these two missiles are the only real tank killers. The remaining TOW missiles will be consumed in training.

COMMUNICATIONS AND ELECTRONICS

As I mentioned earlier, fiscal years 1990 and 1991 acquisitions continue our efforts to build the USMC "Digital Backbone" switching system. These procurements are urgently needed to replace our aging, analog, non-secure fielded systems with more effective and reliable digital systems. Such systems will provide modern, secure, and jointly interoperable voice and data switching communications services to all elements of the Marine Air-Ground Task Force (MAGTF). They will also ensure interoperability with the tactical switching systems of CINC/Joint Task Force (JTF) Headquarters in joint and combined operations.

The major communications-electronics acquisitions in the "Digital Backbone" system in fiscal years 1990 and 1991 are the Unit Level Circuit Switch (ULCS), the long range AN/TRC-170 Tactical Digital Troposcatter Radio, and the short range AN/MRC-139 Digital Wideband Transmission system. The chart below illustrates the network between the components of the digital backbone system. As you can see, the system is built around the ULCS with the long and short range radios connecting the headquarters to the ground, air, and support elements as well as connecting the individual elements to each other.

MARINE AIR GROUND TASK FORCE GENERIC DIGITAL BACKBONE


HIGHER HQ/ JOINT DIGITAL SWITCH
TRC-170
COMMAND ELEMENT ULCS
TRC-170
MRC-139
MRC-139
MRC-139
MRC-139
CONNECTS TO SUBORDINATE UNITS
GROUND ELEMENT ULCS
SUPPORT ELEMENT ULCS
MRC-139
MRC-139
MRC-139
CONNECTS TO SUBORDINATE UNITS
TRC-170
TRC-170
AIR ELEMENT ULCS
TRC-170
TRC-170
MRC-139
TRC-170
AIR FIELD ULCS
AIR OPERATIONS CENTER ULCS
TRC-170
AIR COMMAND CENTER ULCS
AIR FIELD ULCS

The ULCS is a family of joint, tactical automatic switching equipment that provides secure digital telephone communications to the Marine Air-Ground Task Force. This production effort continues on schedule with the recent First Article Tests at the Joint Interoperability Test Center, Fort Huachuca, Arizona. This location was chosen because it contains a robust network of switches with the capability to test all the features and functions of the highly complex ULCS equipment. Establishment of the life cycle support activities for the maintenance of hardware, software, and personnel training are also proceeding on schedule. Initial Operational Capability is still scheduled for late 1990.

The successful interconnection of these switching nodes depends on the digital wideband radio transmission systems which will carry the high volume digital signals from location to location. In fiscal year 1990 we begin the procurement of two systems for this purpose, the long range AN/TRC-170 radio and the short range line-of-sight AN/MRC-139 radio.

The AN/TRC-170 is a super high frequency troposcatter radio set which will provide a digital wideband transmission path for ranges up to 100 miles. It will provide the multichannel connection between the MAGTF Command Element and the CINC/Joint Task Force Headquarters. It will also provide the secure multichannel voice and data paths between the MAGTF Command element and the major subordinate ground, air, and combat service support command elements of the MAGTF. Within the Air Combat Element, it is the primary transmission means for passage of air command and control information between the Tactical Air Command Center and the Tactical Air Operations Center.

The AN/TRC-170 has been in production since 1982 when the U.S. Air Force signed the first contract to buy systems for itself and the U.S. Army. The fiscal year 1990 USMC systems will be bought using an option on the current U.S. Air Force contract while the fiscal year 1991 and 1992 quantities will be bought on a competitive multiyear contract to be awarded by the Air Force in fiscal year 1991.

The AN/MRC-139 is the short range line-of-sight multichannel radio set which will provide secure voice and data links between digital switches at ranges of 35 miles for major MAGTF command elements and their subordinate elements. This program is an excellent example of streamlined acquisition. Using a two phase Non-developmental Item (NDI) approach, two contractors were selected from qualified bidders to build and deliver prototypes for a performance competition during phase one. The government has already negotiated not-to-exceed production option prices from both contractors for phase two. Based on the results of the test to be completed in fiscal year 1989, we will select the winning contractor and exercise the production option to complete phase two of the contract.

Other major programs in this budget activity include the Position Location Reporting System (PLRS) and the Tactical Air Operations Module (TAOM). The recent fielding of the initial PLRS significantly enhances the MAGTF Commander's ability to effectively control ground maneuver and air combat elements. For the first time, he has jam-resistant real time three dimensional position location information that will enable him to better coordinate both fire and air support in a timely and accurate manner. This, coupled with reliable navigation assistance to the friendly force and reduced requirements for voice communications, are significant new enhancements to our warfighting capabilities. The PLRS Follow-On Operational Test & Evaluation (FOT&E), conducted in 1988, confirmed the operational suitability of the system and was used to validate the hardware requirements for the follow on PLRS buy in FY 1989. Fiscal years 1990 and 1991 funds will be used to complete the PLRS procurement.

The success of our Tactical Air Operatiors Module (TAOM) program is attributable to cooperative Marine Corps-Air Force efforts to procure common and interoperable air control equipment to replace aging and obsolescent systems entering their third decade of service. Following the October 1987 Operational Test and Evaluation (OT&E), three engineering development models were fielded to an active Marine Corps tactical air control squadron. These systems have supported daily air control operations, Marine Expeditionary Brigade-Level Deployments, and were recently employed during the Egypt based Exercise Bright Star 87-A, a U.S. Central Command exercise. The system performed under extremely harsh conditions with no mission failures. When fully fielded, Marine Corps and Air Force TAOM equipped units will support joint, NATO and combined exercise and contingency operations well into the next century.

Last year, the Congress deleted the telecommunications and non-telecommunications modification kit lines in this budget activity due to poor obligations. However, this action has proven counterproductive as it has prevented the Marine Corps from upgrading some of our crucial radar systems such as the AN/TPS-32, AN/TPS-63, and AN/TPS-59. While we share your concern with poor obligations, each modification kit, as you know, is a separate and distinct entity independent from the obligation history of any other modification kit. This year, we ask that you consider each kit separately before you take any action. We will be more than happy to consult with you on any particular modification kit on a detailed basis.

SUPPORT VEHICLES

We have virtually replaced all of our tactical vehicle fleet over the last eight years. Within this budget request, we continue to procure trailers, some five ton trucks, as well as progressively replacing our aging commercial passenger and cargo vehicles. The only restart is the M876 Maintenance Telephone/Utility Truck. The M876 will be used in the Marine

Corps Communication Battalions and is designed to construct and maintain large-scale, rear-echelon military telephone and electric power systems.

ENGINEER AND OTHER EQUIPMENT

We continue to replace various types of over-aged engineer equipment. This equipment will provide our forces with increased mobility, individual and equipment protection, and the necessities of life such as potable water.

We are requesting funds to buy environmental control and power equipment, light rough terrain cranes, tactical fuel systems, lightweight decontamination equipment, shelters, containers, training devices and simulators with increased emphasis on combat training. The importance of these items to combat effectiveness is often overlooked.

VII. RESERVE FUNDING

As we have stated many times, the Marine Corps Reserve is our largest source of sustainability and provides the capability for rapid expansion of our forces during an emergency. The reserve adds a vital dimension to the Marine Corps ability to respond to a crisis requiring mobilization and is an integral partner with the active forces. All our acquisition objectives reflect active and reserve requirements concurrently. This includes initial issue quantities and planned sustainability for reserve units which would deploy in the near term.

The Procurement, Marine Corps (PMC) appropriation will fund $28.1 million of reserve equipment in fiscal year 1990 and $315.1 million in fiscal year 1991. The large increase between the two fiscal years is due to buying the reserves 88 M1A1 tanks at a cost of $267.0 million. The special congressional appropriations for National Guard and Reserve equipment have greatly helped over the years. In fiscal year 1989 we will procure four Tactical Air Operations Modules (TAOM) for $26.8 million and various other vital equipment totaling $10.0 million. We have informed you of these latter equipment procurements in separate correspondence.

VIII. CONCLUSION

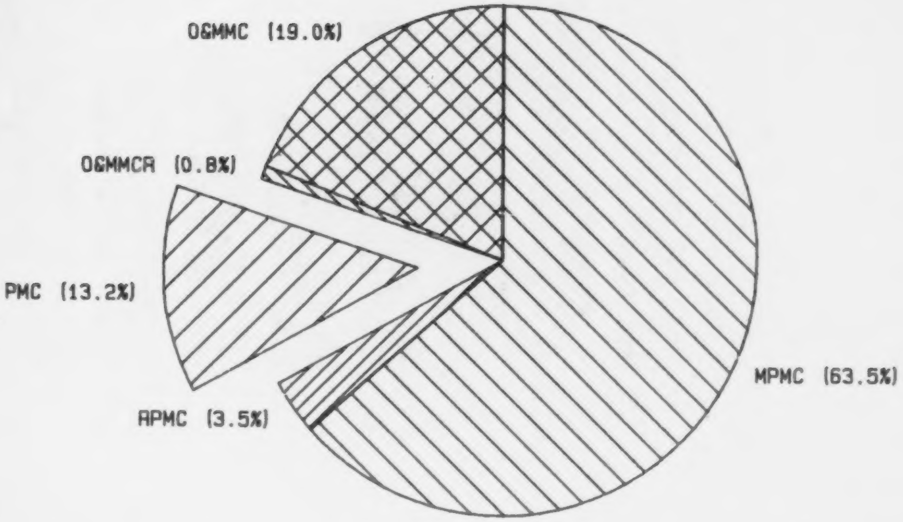
The Marine Corps's primary overall goal is readiness for combat. Our amphibious and expeditionary capabilities have always been our unique contribution to national security and we believe that the procurement budget request submitted for your consideration supports that goal within current constraints. It represents a balanced allocation of investment resources. The $1.2 billion in fiscal year 1990 and $1.4 billion in fiscal year 1991 represents the minimum funding required to accomplish our overall goal. We still have more to do, and we sincerely hope you will support us in this effort. We are ready to consult with you at any time regarding any further matters. The remaining portion of my statement contains the exhibits which will assist in your analysis of our budget request.

IX. DETAILED FUNDING OVERVIEW

The attached pages provide a detailed funding overview of the Procurement, Marine Corps (PMC) fiscal year 1990/1991 President's budget.

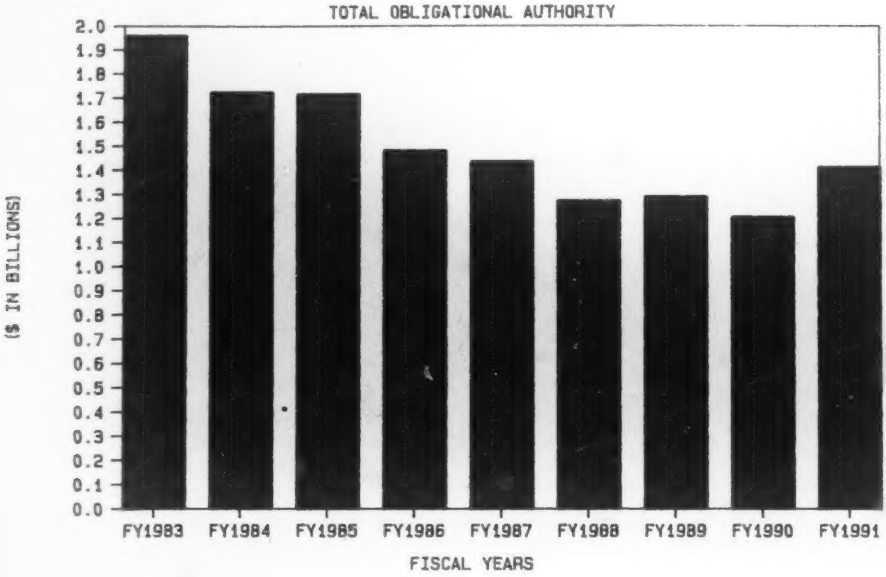
USMC TOTAL OBLIGATION AUTHORITY

FISCAL YEAR 1990



APPROPRIATION TITLE	FY 1990	PERCENT TOTAL
MILITARY PAY, MARINE CORPS	5818.9	63.5%
RESERVE PAY, MARINE CORPS	319.2	3.5%
OPERATION & MAINTENANCE, MC	1745.1	19.0%
OPERATION & MAINTENANCE, MCR	77.4	0.8%
PROCUREMENT, MARINE CORPS	1207.6	13.2%
TOTAL	9168.2	100.0%

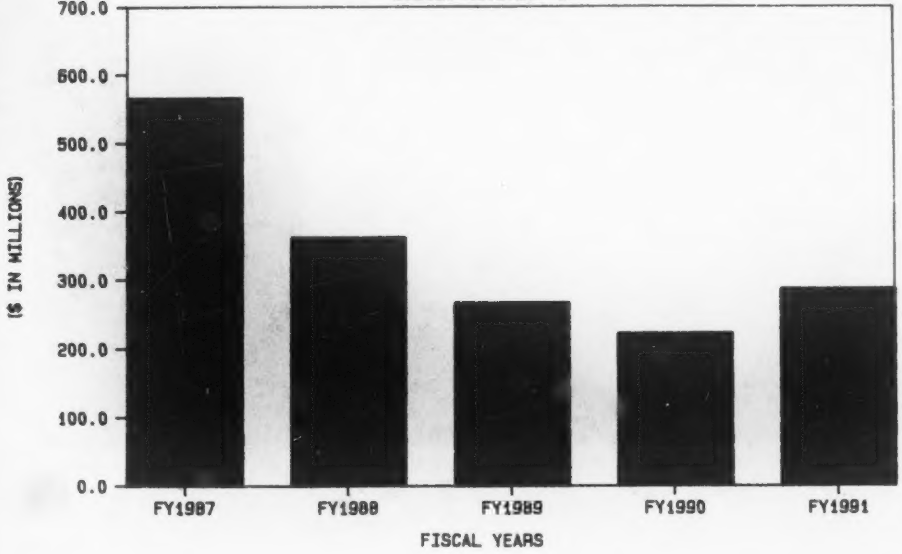
PROCUREMENT, MARINE CORPS



	(DOLLARS IN MILLIONS)			
BUDGET ACTIVITIES	FY1988	FY1989	FY1990	FY1991
1. AMMUNITION	362.7	267.1	222.4	287.1
2. WEAPONS AND COMBAT VEHICLES	85.7	220.3	543.2	685.7
3. GUIDED MISSILES AND EQUIPMENT	297.2	335.7	11.1	14.9
4. COMMUNICATION AND ELECTRONICS	279.0	266.1	281.8	243.3
5. SUPPORT VEHICLES	52.7	22.7	23.2	32.4
6. ENGINEER AND OTHER EQUIPMENT	162.2	123.7	64.1	90.5
7. SPARES AND REPAIR PARTS	36.0	56.2	61.8	61.4
TOTAL	1275.5	1291.8	1207.6	1415.3

PROCUREMENT, MARINE CORPS

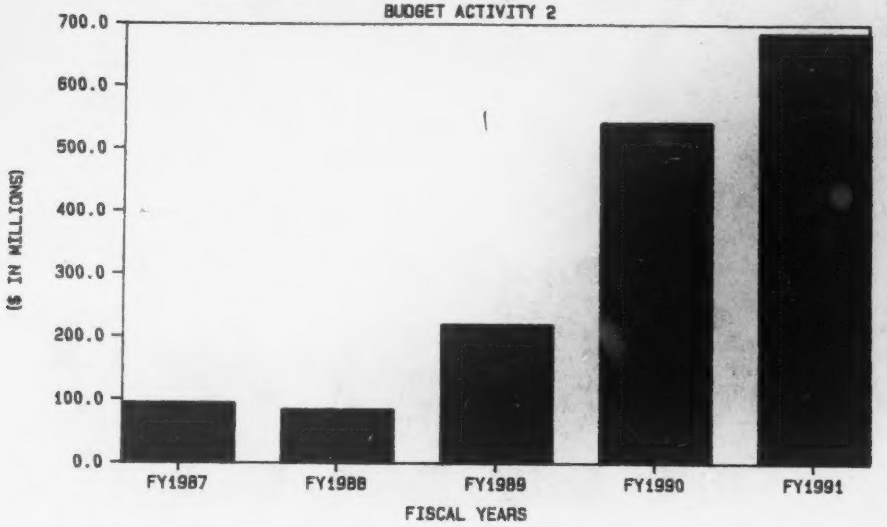
BUDGET ACTIVITY 1



($ IN MILLIONS)

MAJOR PROGRAMS	FY1989 BUDGET DOLLARS	FY1990 BUDGET DOLLARS	FY1991 BUDGET DOLLARS	FY1990 ATTAIN %	FY1991 ATTAIN %
5.56MM, ALL TYPES	15.4	11.8	21.1	73	64
7.62MM, ALL TYPES	4.6	1.1	3.6	74	68
LINEAR CHARGES, ALL	5.4	2.6	2.2	69	45
.50 CALIBER	6.7	12.0	11.9	55	67
40MM, ALL TYPES	22.1	22.5	25.6	57	58
MORTARS, ALL TYPES	77.5	23.0	30.4	53	53
120MM AMMO	13.8	39.0	61.4	14	20
155MM AMMO	47.1	48.6	23.2	47	46
SMAW (HEAA)	27.8	28.4	29.3	36	45
LIGHT ANTI-ARMOR WPN	13.8	3.3	3.4	64	63
9MM, ALL TYPES	3.8		0.8	86	65
GRENADES	9.0	8.7	7.9	76	72
FUZES		5.3	32.9	65	36
8 IN AMMO			17.4	51	72
AMMO MODERNIZATION	17.1	11.1	11.7	-	-
LESS THAN 2 MILLION	3.1	4.9	4.2	-	-
TOTALS	267.1	222.4	287.1		

PROCUREMENT, MARINE CORPS

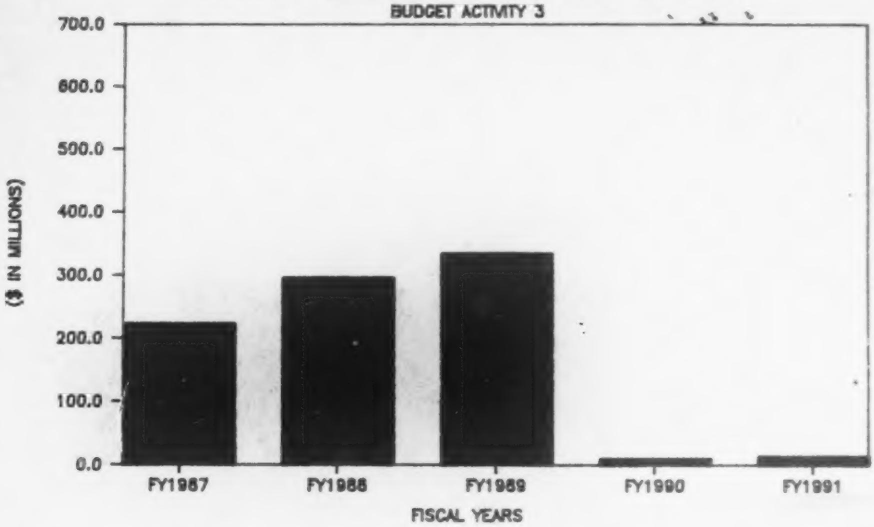


($ IN MILLIONS)

	FY1989 BUDGET	FY1990 BUDGET	FY1991 BUDGET	FY1990 ATTAIN	FY1991 ATTAIN
MAJOR PROGRAMS	QTY/DOLLARS	QTY/DOLLARS	QTY/DOLLARS	%	%
AAV7A1 PIP	-/47.7	-/12.9	-/18.1	-	-
MOD KITS (TRK)	-/0	-/3.0	-/3.0	-	-
M-1 A-1 BATTLE TANK	66/140.6	155/396.3	255/653.4	39	85
M1 A1 ADV PROC	-/15.9	-/120.3		-	-
ITEMS < $2M (TRK & ALL)	-/1.0	-/3.4	-/2.0	-	-
9MM HANDGUN	13589/3.2			96	96
5.56MM SQUAD AUTO WPN	572/1.8	1297/5.4		98	98
50 CAL. MACHINE GUN			456/4.1	89	99
M16A2 RIFLE	9427/5.1			96	96
MK-19 MACHINE GUN	350/5.0	123/1.9	321/5.0	54	61
TOTALS	220.3	543.2	685.7		

PROCUREMENT, MARINE CORPS

BUDGET ACTIVITY 3

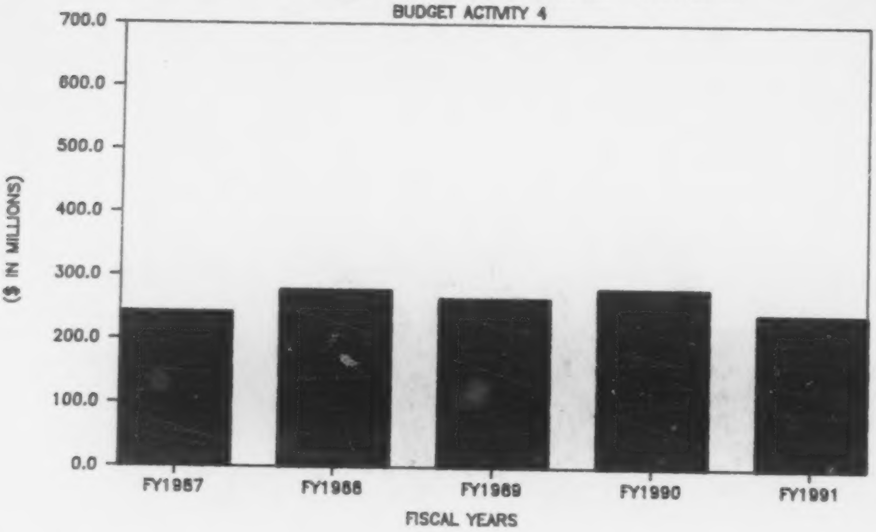


($ IN MILLIONS)

	FY1989 BUDGET	FY1990 BUDGET	FY1991 BUDGET	FY1990 ATTAIN	FY1991 ATTAIN
MAJOR PROGRAMS	QTY/DOLLARS	QTY/DOLLARS	QTY/DOLLARS	%	%
HAWK (MYP)	467/98.0	-	-	59	59
HAWK ADV PROC	-/34.2	-	-	-	-
HAWK MOD	-/5.8	-/1.1	-/4.9	-	-
STINGER (MYP)	3115/141.1	-	-	93	93
DRAGON PIP	14599/29.0	-	-	-	
TOW (MYP)	2577/25.7	839/10.0	900/10.0	38*	41*
MOD KITS	-/1.9	-	-	-	-
TOTALS	335.7	11.1	14.9		

PROCUREMENT, MARINE CORPS

BUDGET ACTIVITY 4



($ IN MILLIONS)

MAJOR PROGRAMS	FY1989 BUDGET QTY/DOLLARS	FY1990 BUDGET QTY/DOLLARS	FY1991 BUDGET QTY/DOLLARS	FY1990 ATTAIN %	FY1991 ATTAIN %
MANPACK RADIOS		-/4.3	-/2.5	-	-
VEHICLE MTD RADIOS	-/.4	-/42.5	-/53.2	-	-
ULC SWITCH	-/75.7	-/48.2	-/31.5	-	-
TACT COMM CENTER	-/9.4	-/7.7		58	58
AN/PSG DIGITAL COM		174/3.6	511/10.1	62	77
SWEEP GENERATOR		-/3.3	-/3.5	46	94
TEST CALIB/MAINT (T&NT)	-/1.8	-/1.5	-/1.5	-	-
MOD KITS (T/NT/INTEL)	-/0	-/17.7	-/13.9	-	-
ITEMS < $2M (T/NT/INTEL)	-/.1	-/4.8	-/2.6	-	-
PLRS	0/29.2	2/59.8	0/26.8	100	100
TACT AIR OPER MOD	8/63.9	5/46.6	5/40.7	69	79
LEWDD	4/5.0	10/2.4	42/9.8	14	55
INTELLIGENCE SUPP	-/7.0	-/4.4	-/11.6	-	-
NIGHT VISION EQ	-/16.4			-	-
ADP EQUIPMENT	-/31.9	-/23.3	-/17.0	-	-
OTHER REPAIR/TEST EQ (T)	-/11.2	-/4.7	-/8.4	-	-
OTHER REPAIR/TEST EQ (NT)	-/7.6	-/7.1	-/6.7	-	-
OTHER COMM/ELEC EQ	-/6.4		-/3.7	-	-
TOTALS	266.1	281.9	243.3		

PROCUREMENT, MARINE CORPS

BUDGET ACTIVITY 4 (CONTINUED)
($ IN MILLIONS)

OTHER REPAIR/TEST EQUIPMENT (TEL)

LINE NO	ITEM NOMENCLATURE	FY1989	FY1990	FY1991
70	AUTO TEST EQUIP SYSTEM	8.0	-	-
72	ELECTRONIC TEST EQUIP	2.3	4.7	8.4
73	AN/GRM-114A RADIO TEST SET	.9	-	-
TOTAL		11.2	4.7	8.4

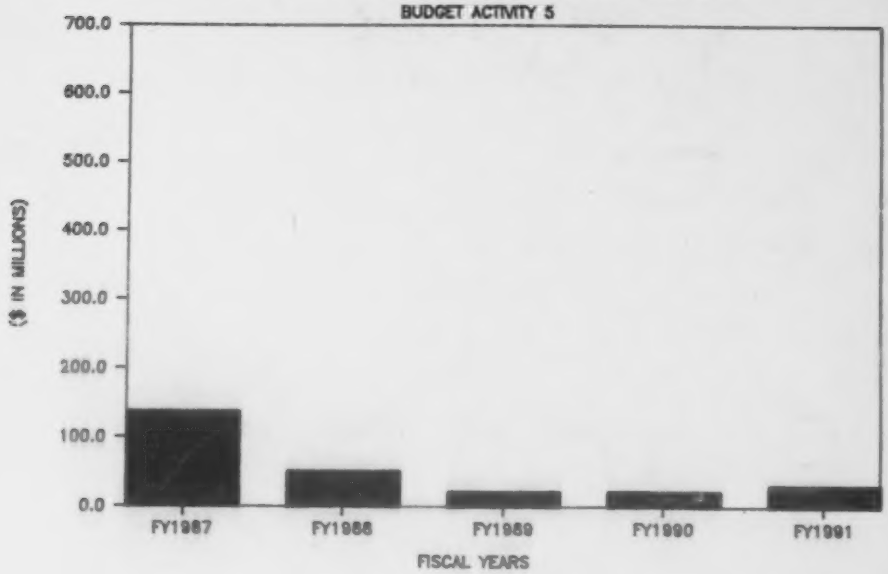
OTHER REPAIR/TEST EQUIPMENT (NONTEL)

LINE NO	ITEM NOMENCLATURE	FY1989	FY1990	FY1991
86	ELECT TDME REPAIR FAC	-	-	3.7
87	SPECTRUM ANALYZER	-	4.1	-
89	STE/ICE SIMPLE TEST EQ	.8	-	-
90	MECH TEST TMDE	.9	1.2	1.3
91	RADAR TEST SET	4.0	-	-
92	ELECT TEST EQUIP (NT)	1.9	1.8	1.7
TOTAL		7.6	7.1	6.7

OTHER COMM/ELECT EQUIP

LINE NO	ITEM NOMENCLATURE	FY1989	FY1990	FY1991
74	ANDVT/TACTERM	2.6	-	-
80	TACT RECEIVER EQUIP SET	3.8	-	-
93	THERMAL IMAGING EQUIP	-	-	3.7
TOTAL		6.4	-	3.7

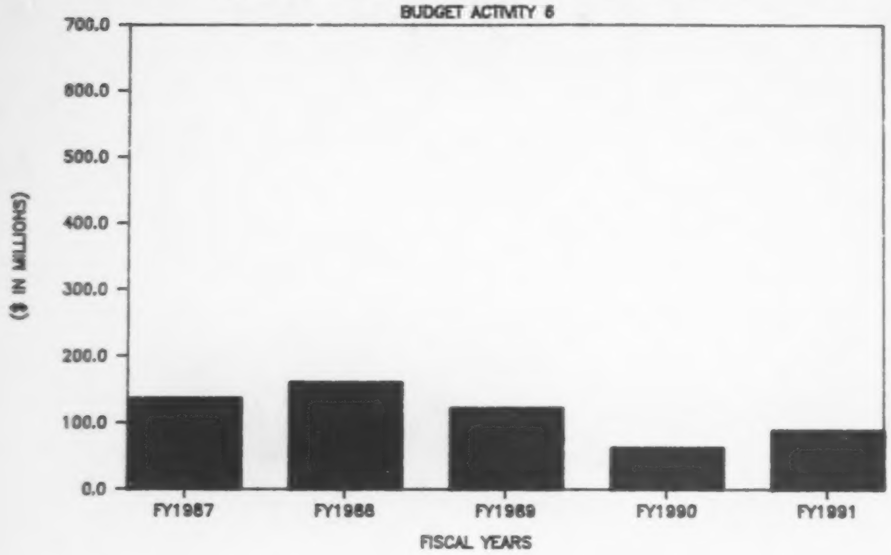
PROCUREMENT, MARINE CORPS



($ IN MILLIONS)

MAJOR PROGRAMS	FY1989 BUDGET QTY/DOLLARS	FY1990 BUDGET QTY/DOLLARS	FY1991 BUDGET QTY/DOLLARS	FY1990 ATTAIN %	FY1991 ATTAIN %
COMMERCIAL PASS	135/2.3	142/2.0	154/2.4	-	-
COMMERCIAL CARGO	-/12.7	-/13.0	-/13.0	-	-
5 TON TRUCKS		-/2.6		-	-
M876 MAINT TRUCK			27/4.9	95	95
LOGISTICS VEH SYS	-/5.8			67	100
TRAILERS	-/1.9	-/2.1	-/2.1	-	-
MOD KITS		-/2.9	-/8.9	-	-
ITEMS > $2 MILLION		-/0.7	-/1.2	-	-
TOTALS	22.7	23.2	32.4		

PROCUREMENT, MARINE CORPS



($ IN MILLIONS)

	FY1989 BUDGET	FY1990 BUDGET	FY1991 BUDGET	FY1990 ATTAIN	FY1991 ATTAIN
MAJOR PROGRAMS	QTY/DOLLARS	QTY/DOLLARS	QTY/DOLLARS	%	%
ENVIRONM CONTROL	-/2.6	-/.1	-/1.9	95	98
POWER EQUIP ASSORTED	-/.1	-/.5	-/12.1	88	97
LIGHT ROUGH TER	142/8.1	18/1.1		99	99
TRACTORS	-/11.7			-	-
FORKLIFTS	-/27.8			-	-
DRY CHEM FIRE EXT		300/3.1	196/2.1	57	79
FUEL SYSTEMS	-/5.7		-/2.3	-	-
LTWEIGHT DECON	282/3.6		263/3.6	48	67
TRAINING DEVICES	-/6.3	-/5.0	-/3.6	-	-
SHELTER FAMILY	-/19.2	-/13.8	-/15.1	-	-
CONTAINER FAMILY	-/12.7	-/12.2	-/15.3	-	-
PRODUCTIVITY INVEST	-/2.0	-/10.6	-/8.3	-	-
TOPO/SURVEY			-/3.7	65	100
ITEMS < $2 MILLION	-/3.3	-/3.8	-/2.7	-	-
VAR SPT & HAND EQ	-/17.1	-/13.9	-/18.2	-	-
OTHER ENGR EQUIP	-/3.5		-/1.5	-	-
TOTALS	123.7	64.1	90.5		

PROCUREMENT, MARINE CORPS

BUDGET ACTIVITY 6 (CONTINUED)
($ IN MILLIONS)

VARIOUS SUPPORT AND HANDLING EQUIPMENT

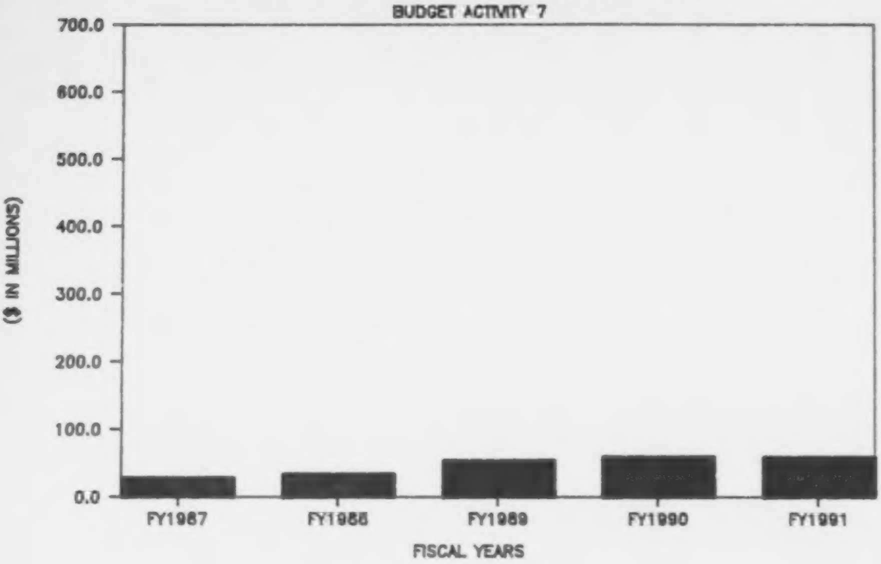
LINE NO	ITEM NOMENCLATURE	FY1989	FY1990	FY1991
123	COMMAND SUPPORT EQUIP	2.9	4.0	7.0
124	AMPHIBIOUS RAID EQUIP	1.7	.2	.2
126	PHYSICAL SECURITY EQUIP	2.0	.3	.3
127	GARRISON MOBILE ENGR EQUIP	2.5	4.5	5.5
128	TELEPHONE SYSTEMS	4.9	-	-
129	WAREHOUSE MODERNIZATION	.9	2.5	3.0
130	MATERIAL HANDLING EQUIP	2.2	2.4	2.2
TOTAL		17.1	13.9	18.2

OTHER ENGINEER EQUIPMENT

LINE NO	ITEM NOMENCLATURE	FY1989	FY1990	FY1991
115	FIELD BATH SHOWER UNIT	3.5	-	-
139	MODIFICATION KITS	-	-	1.5
TOTAL		3.5	-	1.5

PROCUREMENT, MARINE CORPS

BUDGET ACTIVITY 7



($ IN MILLIONS)

MAJOR PROGRAMS	FY1989 BUDGET DOLLARS	FY1990 BUDGET DOLLARS	FY1991 BUDGET DOLLARS
MISSILE INITIAL SPARES	6.6	0	0
WGTCV INITIAL SPARES	4.1	10.2	12.4
SUPPORT VEH INITIAL	2.4	0.2	0
COMM/ELEC INITIAL	17.7	14.0	12.3
ENGINEER INITIAL	1.3	1.7	1.5
REPLENISHMENT SPARES	24.1	35.8	35.3
TOTAL	56.2	61.9	61.5

PREPARED STATEMENT OF MAJOR GENERAL R. "M" FRANKLIN

COMMANDING GENERAL

MARINE CORPS RESEARCH, DEVELOPMENT, AND ACQUISITION COMMAND

Marine Corps Allocation of RDT&E,N

I. Introduction

Mr. Chairman, distinguished members of the committee, it is indeed a pleasure to appear before you and present the Marine Corps' fiscal year 1990/1991 Marine Corps allocation of the RDT&E,N budget request. All of the budget figures which I'll be covering today are from President Reagan's Budget submission. This allocation is for Marine Corps ground equipment only. Last year you approved $230 million for the fiscal year 1989 Marine Corps RDT&E,N budget. This year our fiscal year 1990/1991 budget request is $262 million and $303 million respectively.

As you are well aware, Research and Development dollars represent our investment in the future. We have made significant gains in the R&D arena as a result of your continuing support. We have developed and fielded the most modern and reliable equipment in our history. We have also taken advantage and plan to continue to take advantage of technological innovations and to incorporate them into pre-planned-block upgrades for other equipment in our inventory to improve both performance and survivability against the modern threat.

II. Program Overview

Our R&D strategy must always remain adaptive and responsive to defeating enemies who are also taking advantage of emerging technologies to gain a battlefield advantage. As part of the Nation's maritime strategy, we are an expeditionary and amphibious force capable of rapid power projection from the sea. Our focus is to fight and win on any battlefield. To accomplish this, we must exploit superior and survivable technologies. In this regard, we are concentrating on cost effective and innovative efforts that will maximize our performance capabilities.

Our fiscal year 1990/1991 budget request includes the following major programs:

Major Marine Corps RDT&E,N Programs
($ in millions)

	FY 1990	FY 1991
Advanced Amphibious Assault (AAA)	2.7	26.0
Light Armored Vehicle - Air Defense (LAV-AD)	20.2	17.8
Light Armored Vehicle - Assault Gun (LAV-AG)	19.5	19.2
Surf Zone Mine Clearing (SZMC)	24.7	27.5

	FY 1990	FY 1991
Advanced Tactical Air Command Central (ATACC)	22.8	3.1
Joint Tactical Information Distribution System (JTIDS)	3.3	8.5
Unit Level Tactical Data Switch (ULTDS)	.1	1.1
Assault Amphibious Vehicle (AAV7A1)	11.1	9.7
DRAGON III (Terminated, balance to AAWS-M)	10.9	3.7
Air Defense Missile Systems (ADMS)	9.6	6.5
Tactical Electronic Reconnaissance Processing/ Evaluation System (TERPES)	8.7	10.1
Stratified Charge Rotary Engine (SCRE)	13.4	16.0
Exploratory Development	16.4	17.6
Joint Services Imagery Processing System (JSIPS)	11.3	16.9
Other	86.8	119.7
TOTAL	261.5	303.5

These programs will allow us to capitalize on the unique power projection capabilities of our Navy-Marine Corps team as a force in readiness. These include Over-The-Horizon (OTH) force projection, digital communications integration, Light Armored Infantry Battalion (LAI Bn) combat operations, Advanced Air Communications Control Systems, and effective Surf Zone Countermine Systems. While we consider the above our key programs, there are many other ongoing efforts that will provide for the future combat effectiveness of your Marine Corps. Your continued support for these efforts is required as well.

III. Over-the-Horizon

We recognize that in the future, we will have to approach hostile shores from even greater distances. The evolution of the Over-The-Horizon (OTH) concept is illustrative of the Marine Corps adaptability to change to fulfill mission requirements. With the rising frequency of minor conflicts which threaten our national interests, coupled with the decreasing numbers of foreign bases and over-flight rights for U.S. aircraft, the principal method for a maritime nation to project military power will continue to be the amphibious operation. First, by having an Amphibious Task Force remain OTH and under the protective umbrella of the striking fleet, sufficient warning time and maneuver sea space will be available to the ships under air or missile attack to employ the full array of active and passive defense systems. The greater distance from shore also reduces vulnerability of the Amphibious Task Force by taking it out of the range of shore based missile systems which are prolific in many third world countries. The second OTH benefit is the element of tactical surprise. By being out of sight of the enemy and having the ability to rapidly move to shore and project combat strength at the place of our choice, we force the enemy to disperse his defenses over a wide geographical area.

We are continuing to look at the options and believe that the triad of systems which will execute the OTH concept includes the MV-22 Osprey tilt-rotor aircraft, the Landing Craft Air Cushion (LCAC), and the Advanced Amphibious Assault (AAA) System. Funding for AAA advanced development is included in the FY 1990 budget request. We have found that non-amphibious vehicles are not the likely answer, as they would require a significant increase in the number of LCAC's, take up more well deck space, and would thus require more amphibious shipping, a costly option.

It is clear that our current amphibious vehicle, which will be 32 years old at the turn of the century, is restricted by its 1960's design to be survivable against a modern threat ashore in the latter 1990's or to execute OTH assaults in any reasonable way. A very mature technology base has produced significant breakthroughs in suspension components, high speed water jets, composite armor hull materials, propulsion plants and advanced weapons stations. These efforts have significantly reduced the technological risks for a modern replacement system that will not have to compromise its 75% land-utilization requirements for its 25% water borne features. The proof that these technologies are available now is verified by our high water speed technology demonstrator which is scheduled for operational testing during May of this year. These proven technologies incorporating features of reduced weight and increased speed to attain mobility and survivability, are leading to the full development of a successful AAA program.

Only once every 20 to 30 years does the Marine Corps request principal sponsorship of an acquisition category I program. The AAA system represents the only planned major ground weapon system development for the Marine Corps in the decade of the 1990's. This high speed amphibian is one of the solutions needed to complete the OTH triad by the beginning of the 21st century.

IV. Light Armored Vehicle, Air Defense and Assault Gun Variants

We have strengthened the expeditionary capabilities of the Marine Corps by converting Light Armored Vehicles Battalions (LAV Bn) to Light Armored Infantry Battalions (LAI Bn). The mission for these battalions includes reconnaissance, security, and economy of force operations.

Since the LAI battalions will be operating at extended distances from the forward edge of the battle area and because of terrain masking, they will not be covered by the Air Defense umbrella of the Marine Air-Ground Task Force. In order to defend these maneuvering combat forces against low flying airborne attacks, we are developing the Light Armored Vehicle - Air Defense variant.

This weapon platform will provide a highly mobile vehicle which can fire on the move, both day and night, and provide a low altitude, anti-aircraft weapons platform which uses a 25mm automatic gun, Stinger missiles, and 2.75 inch rockets. The turret will integrate these weapons along with the fire control system which consists of a fire control computer, laser rangefinder, forward looking infrared sight, multimode autotracker, video display, optical sights and vehicle navigation system.

The long range missions of the LAI Bn additionally require an assault gun capability for conducting limited offensive and delaying operations. The LAV - Assault Gun (LAV-AG) will provide direct fire support for missions assigned to the LAI Bn and other elements of the MAGTF. To enhance its effectiveness, the LAV-AG will make maximum use of its inherent mobility and firepower. Targets that will be engaged by the LAV-AG are light armored vehicles, fortified emplacements and urban targets.

V. Countermine Systems

Recent history has reminded us that virtually every country in the world either possesses or has accessibility to mines. Some are relatively new and others date back to World War II and before. Mines in the surf zone, shallow water and on beaches are a "show stopper" for Amphibious Task Forces. Over the five year defense plan, the Marine Corps will invest 13% of its Research and Development budget to solve this problem. Advancements in this area are critical to the success of the amphibious assault. The Surf Zone Mine Clearing (SZMC) program will provide a "shoot-on-the-move" capability to clear lanes in the surf zone and beyond the high water mark. It will utilize emerging fuel-air explosive technology with multiple detonations. The system is rack mounted with a slide-in and slide-out capability for the assault amphibious vehicle. Counter-measures to mines remain a critical combat capability priority.

VI. Aviation Command and Control

An example of acquiring advanced technology at reduced cost is the Advanced Tactical Air Command Central (ATACC) which incorporates non-developmental hardware and software. The ATACC development supports the Marine Aircraft Wing's Tactical Air Command Center. This competitive, streamlined program will utilize 100% non-developmental item (NDI) hardware and 65% NDI software. The developed software will utilize the Ada high order language to automate the present manual decision support functions of the Tactical Air Command Center.

Integrated with the Tactical Air Operations Module (TAOM) and ATACC, the Joint Tactical Information Distribution System (JTIDS) will provide a high capacity, jam resistant, secure digital communications capability. This is required to support Joint and Combined operations command and control interoperability and standardization. The standardized link between the TAOM, ATACC and JTIDS is the Tactical Digital Data Link - J (TADIL-J) utilized in JTIDS and to be incorporated into the TAOM and ATACC. These developments will bring joint aviation tactical command and control from a manual to an automated system of control and data transfer.

VII. The Communications Digital Backbone

The Marine Corps is currently replacing its obsolete and non-secure command and control equipment with modern and secure digital components that have greater maintainability and reliability. All of these components have been developed for a secure, switched voice network. They consist of the Unit Level Circuit Switch (ULCS), the long range AN/TRC-170 Tactical Digital Troposcatter Radio, and the short range AN/MRC-139 Digital Wideband Transmission System. However, we still need to integrate data transmission capability into this command and control communications network.

Still under development to complete the digital backbone is the Unit Level Tactical Data Switch (ULTDS) which will provide a secure tactical command and control packet switched data network to link the headquarters, ground, air and supporting elements of the MAGTF. It will also provide tactical data switching interoperability with the Commander-in-Chief/Joint Task Force Headquarters in Joint and Combined Operations. This mobile tactical data switching capability is crucial in modern combat to disseminate the vast amount of data necessary for the command and control of operating forces. Completion of the digital backbone is critical for survival on the battlefields of today and in the future.

VIII. Conclusion

In the introductory remarks, I talked about investing wisely in Research and Development to build a foundation for the future. We are a ready Marine Corps which can respond to any threat. In order to remain a viable force-in-readiness in the 21st century, we are investing in capabilities that will take us there: OTH capabilities, LAI Bn, Mine/Countermine Systems, modernization of our air command and control systems, and completion of our digital communications backbone system. We appreciate your continuing support in these vital areas of concern and will be happy to provide greater detail on any of our developmental efforts.

V-22 OSPREY AIRCRAFT

Mr. **MURTHA**. On the V-22 program, are you far enough along that you can tell what is going to happen? For instance, I understand it is slipping. It is seven or eight months behind. Have you made a decision on it yet?

General **FRANKLIN**. As you know, the V-22 is a Navy program. The Commandant has testified it will fly by midnight on the 16th, and I believe it.

Mr. **MURTHA**. How about the procurement part?

Is it going to slip?

General **FRANKLIN**. Dick, do you have the specifics on that? I think it is a one-year slip.

DRAGON MISSILE

Mr. **MURTHA**. Tell us about the AAWS-M program and the Dragon missile. I want everybody to hear this now. What have you decided on the AAWS-M?

General **FRANKLIN**. Last Tuesday morning, I gave a report to the Commandant, as a result of my team that had been down at Titusville looking at the Dragon III program. When my team came back, they said the Dragon III program has slipped about 11 to 13 months. They said that it is overrunning above what we had in the budget, and we think that you should go to the Commandant and have it killed.

So I went to the Commandant and he, in fact, directed that we cease and desist development of the Dragon III. We have issued a stop work order and we will clean up the close-out costs and Dragon III is no more.

Mr. **MURTHA**. How much money are you talking about for close-out costs?

General **FRANKLIN**. About $9 million is the estimate right now, sir.

Mr. **MURTHA**. How much have we spent so far?

General **FRANKLIN**. So far, $41.8 million has been put into the R&D over the last four years. The total cost would have come to $70 million, and it just didn't seem worth it; going on with the slip.

There is another side to the decision we made. The Army has been very forthcoming with us in the AAWS-M program. Even though we did not give them money, they allowed us to put key people in their source selection process. We were able to help them come to the decision, which we think was the right decision, on fire-and-forget technology.

We have a lot of faith in their program manager and we think they have stepped up to the program and we would like to join them in procurement.

Mr. **MURTHA**. Mr. McDade?

AMMUNITION

Mr. **MCDADE**. Thank you, Mr. Chairman.

Welcome both of you before the committee. With potted palm or without, we are glad to have you here. In your statement, you say that ammunition historically accounted for 30 percent of the

Marine Corps procurement budget. Last year, that amount was down to 19 percent and the Congress, after some consultations, revised it up to 21 percent. This year, you are down to 18 percent. What is happening? Do you want to tell us, please?

General **Franklin**. Yes, sir.

It is an indication of more than just an ammunition account. It is an indication of the entire budget.

The Marine Corps budget is very similar to the national budget. A large portion of it is entitlements; in other words, manpower, and when you have cuts that come, you take disproportionate shares in those areas where you can. We were forced to make ammunition pay its portion of the PMC budget cut.

We are, as of this year, beginning to fire more ammunition in training than we can buy. In the past years during the eighties, we put a lot of ammunition in the bins. We did what we said we would do. We bought it and stored it and ———. We have just reached the point where there is not enough money to keep buying ammunition and modernize.

Mr. **McDade**. Those historic averages are part of the procurement budget, not the entire Marine Corps budget. The trends indicate that you are assigning a lower priority to the ammunition account; and you are saying it is because of affordability?

General **Franklin**. Yes, sir.

Mr. **McDade**. You wouldn't do it if you weren't in the crunch?

General **Franklin**. Absolutely not.

Mr. **McDade**. Are you expecting to see additional reductions in this account because of the Bush budget revisions?

General **Franklin**. I would think there will be minor adjustments. Last year I think I mentioned that at the level of $330 million a year, we could maintain inventory. Every $80 million buys another day of supply. so if you are $80 million below $330 million, you will shoot up one day's supply of ammunition on the average.

Mr. **McDade**. You are actually shooting more in training than you are buying?

General **Franklin**. Yes, sir.

Mr. **McDade**. You haven't reduced the training?

General **Franklin**. No, sir.

Mr. **McDade**. So that impacts on your war reserves?

General **Franklin**. Yes, sir; it does.

Mr. **McDade**. Will you tell us what is the impact on the war reserves?

General **Franklin**. When we reach the crossover point, we will be shooting approximately two days every year of our reserves. In other words, in 1990, we will consume two days of our war reserves, so it will drop down.

You have to be very careful of that war reserve number. We have aggregated it. You may have 60 days of 155 mm, but 20 days of MK-19 40 mm. So it becomes meaningless. I could give you precise line-by-line numbers.

Mr. **McDade**. I don't want to get into that. We may have to do that as we get toward mark-up.

I am trying to flesh out the situation with respect to the ammo account because of the budget pressures and the general impact of war reserves.

I guess the bottom line is it is an affordability problem with you, you are forced to do it and that is the reason that you are doing it.

General FRANKLIN. Absolutely.

Mr. McDADE. There is no other justification for what you are doing?

General FRANKLIN. No, sir.

TANK PROCUREMENT

Mr. McDADE. Regarding tank procurement, the budget includes $396,340,000 in regular procurement and $120,300,000 in advance procurement for procurement of 155 M1A1 tanks.

You note that you are buying a "common tank" with the Army. Is this tank any different from the M1A1 tank which the Army is buying?

General FRANKLIN. The only differences, and the reason we call it the common tank now is that the Army is—when we cut the line in to buy our tank, the Army will buy the same tank. It has a deep water fording kit and additional ship tiedowns and a bracket to put in the position location reporting system, PLRS. The future tanks that come up the line will be the common tank.

Mr. McDADE. With those three variations?

General FRANKLIN. Yes, sir.

Mr. McDADE. The Army will begin to procure the M1 tank with the so-called Block II modifications in fiscal year 1991.

Will the Marine Corp tanks include these modifications?

General FRANKLIN. No, sir. They will not. The reason we wanted to buy ours out in a very short program is so we would have a single tank fleet. If we waited, we would have vanilla M1A1s and some Block IIs. We wanted all vanilla M1A1s. We will have no Block II tanks.

Mr. McDADE. You currently have 716 M-60s in inventory. What is going to happen with these when the M-1 is fielded? Are you going to maintain any of these in inventory?

General FRANKLIN. The M-60 tank will be put up for FMS sales. We will maintain no M-60s. We will have a single tank fleet, active and reserve.

M-88 TANK RECOVERY VEHICLE

Mr. McDADE. Last year you testified that you would modify your M88A1 tank recovery vehicles to make them like the new M88A2 vehicles which the Army was proposing to procure. This would make them capable of recovering the heavier M1A1 tank. As you know, the Army is having second thoughts about the whole M88A2 program and may cancel it.

What would you do in the event the Army did that and what are your thoughts on the need for and use of tank recovery vehicles?

General FRANKLIN. The way they do it today is with two vehicles. They take two of the M-88s, the old ones, or one of those and one tank and they push and pull. We would have to do the same thing. We will not do anything unilateral. We are following the

Army program and when the Army decides, we will buy whatever the Army buys.

Mr. McDADE. Do you think that is a safe way to deal with that problem?

General FRANKLIN. It is an innovative way.

Mr. McDADE. Not necessarily safe?

General FRANKLIN. I would say probably not.

Mr. McDADE. Any other recommendations you would make to the committee, any alternatives, any other methods, any innovations that the Marines might have come up with that might deal with that in a better way?

General FRANKLIN. I don't have anything off the top of my head.

Mr. McDADE. If you want to amplify for the record, please do. Thank you.

Mr. MURTHA. Mr. Young?

CHANGING MARINE CORPS FORCE STRUCTURE

Mr. YOUNG. Thank you, Mr. Chairman.

I was interested in the brief commentary you made on how the Marines have met the challenge no matter what changes were necessary.

What are you looking at now that might require the Marine Corps to make another major change of some type in order to perform your mission?

General FRANKLIN. When General Gray came to town, he said it is time to go back to basics. He really believes that the conflicts of the future, the high probability conflicts of the future will be low-intensity to maybe mid-intensity, regional conflicts, small war-type conflicts, the fights for natural resources and for navigation rights.

We are in the mode at this time of moving some of our heavy things, bridging, some of our bulk fuel, to the Reserves. You will see, I think, a lighter, more mobile Marine Corps in the future. We are preparing for General Gray's vision of the year 2000.

Mr. YOUNG. Mobility is the key. Airlift and sealift are becoming very important?

General FRANKLIN. Absolutely.

EQUIPMENT REQUIREMENT

Mr. YOUNG. What should we be doing that we are not doing to help get ready for that mobility?

General FRANKLIN. Well, we are pretty happy with what has happened. The Congress bought us the LAV. That has been a tremendous vehicle. We need to finish the air defense variant and the assault gun, that would round out that family.

We need to complete the buy of the LCAC fleet. The LCAC has been much more reliable than people thought. There is always a belief that soft-skinned vehicles like that are vulnerable.

I have to tell you I flew CH-53s in Vietnam for quite a while and it is very soft skinned, but the interesting thing about a CH-53 is it is two airplanes side by side, 14 feet apart, hydraulics and engine and everything on one side will run the entire airplane. We took a lot of hits, but it was seven months in combat before we lost our first airplane. It is pretty hard to get a bullet to hit both sides at the same time.

The LCAC is two ships side by side about 54 feet apart; an even tougher problem. What a lot of people don't realize is the armor on the LCAC is the same armor that is on the amphibian tractor. The LCAC needs to be bought out. We need to do over-the-horizon.

If you are willing to start your assault at 200 miles, an amphibious task force off the East Coast of the United States 24 hours away can threaten the entire coast between Boston and Savannah. So being able to do that and allowing us to get the triad, the V-22, the high-speed tractor, and buy out the LCAC for the Marines and enough well deck space to get us there; those are the real important things you have to do for us.

Mr. YOUNG. I had a demonstration on the LCAC and it was very impressive. I actually went underneath one of the ones in the construction area.

I thought it was a pretty substantial piece of equipment. I saw it actually going across very rough terrain and fairly sizable inclines. It was a very impressive weapon.

I read just recently where one or two had been overturned in some rough seas. My understanding was on the story that I read that it didn't perform like it should have. Then I was also led to believe that the sea was maybe like a 15 to 18 foot sea.

What is the story on that?

General FRANKLIN. That is a surprise to me. I don't know of any LCAC that has capsized. We have deployed the LCAC. I think it is on its third deployment now and we have had nothing but high marks for the LCAC and their crews.

Sitting in the cockpit of that is like sitting in the cockpit of a CH-53. It is a low-flying, slow-flying helicopter. I don't know of that incident.

Mr. YOUNG. I read it somewhere. Maybe it was a figment of somebody's imagination.

General FRANKLIN. We will look into that and if we can find any evidence, we will get right back to you.

[The information follows:]

The current LCAC design has no history of capsizing. While the early British hovercraft experienced this problem in two separate instances about 20 years ago, this design flaw has long since been corrected in both the British and American versions. Our only negative experience with operating the LCAC remains once-only learning occasions. For instance, when a zodiac boat came loose on deck and was sucked through a propeller, destroying both in the process, we learned to pay greater attention to cargo tie-down in LCAC operation.

Mr. YOUNG. It is an impressive piece of equipment.

Thank you very much. Thank you, Mr. Chairman.

Mr. MURTHA. Mr. AuCoin, I know you know what happened on the Dragon and AAWS-M. Do you have any questions?

ADVANCED ANTI-TANK WEAPON SYSTEM—MEDIUM (AAWS-M)

Mr. AuCOIN. General Franklin, I do know what happened and we have spoken about the Dragon III.

You know that my view has always been that even at $20 million less, Dragon III was a poor value for the Marine in the field if it were possible to get a true fire-and-forget weapon in the hands of the men in the field.

Could you tell us in detail about the Marine Corps view on the Army's selection now on AAWS–M and how you feel about it?

General **Franklin**. Certainly. The Army has been very forthcoming with this. They have allowed us to participate in the source selection. We have a great deal of faith in their program manager. We have been in all the briefings.

I am going to the ASARC Friday. General Don Pihl has told me that the Army is 100 percent committed to this and if you look at what is going on now in the funding, you will find that they are actually plussing up AAWS–M. We are very comfortable and feel that they will, in fact, bring this one in and we are going to come on board—when you see the 1992 budget, you will see long lead for us in the 1992 budget. We want to join in the LRIP and be with the Army all the way.

Mr. **AuCoin**. For the record, Mr. Chairman, I think the Marine Corps participation in this evaluation was critical to the Army's arriving at a fire-and-forget technology.

General, I hope you realize that the Army didn't come to that conclusion of Marine participation out of the goodness of their heart. There was legislation directing that Marine Corps participation and I think that the Corps played a critical role in getting the technology that gives effectiveness in terms of lethality and also operator survivability and mobility that the operator would need in the field of battle.

Mr. **Murtha**. If the gentleman would yield, if it hadn't been for Les AuCoin, the Marine Corps wouldn't have been so forthcoming. We appreciate your dedication to this particular weapon system.

Mr. **AuCoin**. Thank you very much, Mr. Chairman.

I guess I would ask General Franklin if at least in this one instance he thinks that inasmuch as the Army seemed to be moving towards two technologies that did not include fire-and-forget until this committee got involved, that at least in this one instance, congressional micromanagement produced a good result?

General **Franklin**. I will have to admit that, sir.

Mr. **AuCoin**. There is a question of what happens to the Dragon III money that you had. How important is it that these funds that you have got now for Dragon III be retained by the Marine Corps to help you with early procurement of the AAWS–M? Describe the problem that you may see.

General **Franklin**. The tendency will be, of course, for the people who have to put together this austere budget, to take those funds away because the line says Dragon III and it doesn't take long for word to get around this town that the Commandant has killed Dragon III.

We need to change the title of that line to medium anti-armor system or AAWS–M and we need to retain it from 1992 out. We need to join the Army with this long-lead procurement and their production money.

Mr. **AuCoin**. What was the total procurement cost for Dragon III?

General **Franklin**. I think I have it here somewhere——

Mr. **AuCoin**. Is it $300 million?

General FRANKLIN. Not that much, no. For 1992, $24.7 million; 1993, $66.5 million; and for 1994, $55.7 million. Those are all procurement dollars.

Mr. AUCOIN. Yet by folding those funds into AAWS–M, that is going to help with the affordability question?

General FRANKLIN. It will help the Army's affordability; yes, sir.

Mr. AUCOIN. And obviously the dividends are shared by the Marine Corps?

General FRANKLIN. Yes, sir.

Mr. AUCOIN. You have a shortage of Dragon II weapons. Is there help that this committee could give you to be a bridge between this point in time and the time when the IOC for the AAWS–M weapon arrives?

General FRANKLIN. Last year this committee helped by putting $20 million into our account to refurbish the 8,000 missiles that are in Anniston. We have today 10,800 missiles left that we are running through the update line to make Dragon II's. We took our first deliveries last month of updated Dragon IIs.

We will continue to run the update line as long as we have money and we will finish out the Anniston missiles, make them safe for firing in the school, and we will use them as our school missiles and that will last about 3½ years. So we will have enough school missiles to get us into 1992, 1993. Then we begin eating into our 10,800 war reserve missiles. I would not like to go below 8,000 missiles.

If we can actually get AAWS–M production in 1993 and start getting missiles off the line, it is going to be a thin scrape, but I think we can make it. I believe that you have provided sufficiently for us. If that changes, I would be the first to come back and tell you.

Mr. AUCOIN. The Dragon III dollars, if you can't get that line changed to an AAWS–M line, and this Committee is late in the calendar in its mark-up, then we have the problem of getting you those funds out of the Dragon III line into the AAWS–M line, don't we?

General FRANKLIN. This year's line is all R&D, so there is no procurement money. This was procurement money for 1992 and 1993.

Mr. AUCOIN. Mr. Chairman, I think that is awfully important to make sure that those Dragon III dollars are kept.

Mr. MURTHA. We probably have a legal problem, too, with closeout costs.

He estimates about $10 million for that.

General FRANKLIN. We could certainly use some language that says that so much is left in for termination costs of Dragon III and we will let the lawyers argue about how much it really is.

Mr. AUCOIN. Thank you, General.

Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Miller.

TACTICAL AIR OPERATIONS MODULE

Mr. MILLER. Thank you, Mr. Chairman.

General, are you happy with the tactical air operations module, the TAOM, and can you give us an example how this has performed lately?

General FRANKLIN. I certainly can.

The TAOM-EDM, the engineering development model, we built three units. Each single unit can control enough aircraft to support a Marine expeditionary brigade; the three units together can support an entire MEF operation; 200 aircraft. We left it in the field because it was so successful. We did not cadre the squadron that was using it. We activated the squadron and it is now an active squadron giving readiness reports.

It is reporting ——— because its Table of Equipment, TE, would be six modules so it is at 50 percent of its TE. It is up an active squadron. That module has been to the Marine Air Weapons Tactics shootout twice, to Egypt once, and participated in Bright Star. It operated for eight days straight in Bright Star without a single breakdown. I went to an exercise last year and the TAOM had with it four radars and four friendly F/A-18s against 54 aggressor aircraft and they were defending an airfield that was surrounded by Hawks, a few Stinger teams, and some Cobras with Sidewinders. I had attended the Orange brief and the Blue brief, so I knew what the tactics were. It was interesting to sit in the TAOM and watch for 3½ hours their ability to frustrate the attacking force. For instance, they moved every day for a week. They kept moving. They built dummy radar sites up on hilltops. They had really confused the Blue force. They also used a data link so none of their radars were operating when the war started. They had the F/A-18s data linking the entire air picture down into the TAOM.

You could watch the whole air war without radiating a single electron. Until they got the F/A-18s into a fur ball, about an hour into the war, the radars never radiated and we had a full air picture.

The HARM shooters were hoping the radars would come up and they could shoot their HARMs. They were out there orbiting, frustrated, hitting the tanker, coming back, orbiting—there was nothing to shoot at.

When the F/A-18s finally got involved, the radars had to come up, but with one flick of the switch, a single operator could turn on the radar and he would alert everyone on the net and say, "Stand by for a picture. You have got two sweeps," and on would come a radar. It would make two sweeps. He would get a complete update and turn the radar off. You could see the HARM shooters launch into the sand because there was no radar for them.

When we got back to the debrief, the best accolade you could give to the TAOM came from the attack pilots. The A-6 leader stood up and said, "Well, the coneheads have joined the 21st century." He really meant it. It is an extremely effective system.

PROTECTION FOR TAOM

Mr. **Miller**. That is interesting, and I guess my question is, are we putting a lot of eggs in one basket, because assuming that the TAOM would have a direct hit or two of them would have a direct hit—what type of back-up do we have? What are you purchasing for that?

General **Franklin**. It is interesting to note there are a lot of defensive systems that we are putting in. Let's start with the radars. We have three radars: the TPS-32, the TPS-59, and the TPS-63.

We have one set of decoys deployed already and the decoys are excellent. So we protect the radar with decoys. We have in our mod kit line some more decoys for the TPS-32, and by deploying our decoys, we are able to fool the HARMs. So that is the first thing that we can do.

The second thing we are able to do is with the TAOM. We have gotten away from the big snake farm. The big cables that used to be around all the huts; it is a little fiberoptic cable about as big as your little finger. We can remote the radar from the TAOM a thousand meters and by using a data-link, remote the radars from the TAOM by 35 miles. For the TAOMs that we are using in the field today, each module is mounted on a Dragon wagon.

The TAOM is as mobile as the command group for the division headquarters. We can keep up with it. By having a number of them out on Dragon wagons, we can keep two operating, move two forward, and have two in reserve. We think it is a very survivable system.

TAOM PROCUREMENT DELAYS

Mr. **McDade**. That is an interesting and encouraging report.

Are you experiencing any delays in procurement because of contract options?

General **Franklin**. Yes, sir. We will have some tests run in July of this year. That is a four-month slip and that is really not too bad since the contractor had to build a whole new facility in Colorado to get under production.

We have very intense program management support from SPAWARS and our program managers are out there every day. I am talking to the Vice President of Litton; that is 80 percent of his business in that division, so he pays attention.

I think Mr. Powers has given us good service. When he says he is going to do something, he does it. He hires extra people. I think we are going to have a good system pretty much on time, at most six months late.

Mr. **McDade**. You have a good relationship with those people. You don't need help from here?

General **Franklin**. I don't at this time, but I will be the first to call you if I do.

Mr. **McDade**. Thank you, Clarence.

Mr. **Miller**. Speaking of putting your eggs in one basket, let's assume that we did have many of the TAOMs knocked out. What back-up do we have? Since they are in control, they are able to, as I understand, perform all the required air control functions necessary. We do have, I would hope, some back-up?

General **Franklin**. The big advantage of TAOM—I have to go back to the old control system. It had 13 huts and you needed about seven of those to stay in operation. So if one of those critical seven huts got hit, you were out of business. With the TAOM, we realized that we couldn't accept that, so each individual module of the six is capable of doing the entire air control picture; so, he has to get all six and they are widely separated. He will go after the radars. Those are the radiators and by using fiber-optic cable and digital transmission, the TAOM is a very low signature target.

Being able to control the entire air picture from any one of them, we think the system will be survivable.

MARINE CORPS PROCUREMENT FUNDING

Mr. **MILLER**. In another area, you have mentioned $1.6 billion was a good sustaining level for the Marine Corps procurement and this year for 1990–91, we are talking about $1.2 billion and $1.4 billion. What will suffer in procurement?

General **FRANKLIN**. The things that will suffer in procurement will be the things that Mr. McDade mentioned. Ammunition will suffer. We will not buy all of our acquisition objectives. We will buy what we can afford to buy in many things. The thing that really worries us most is spares because, as you modernize slower, you must put more money into spares. Another area that will suffer is always the base-and-station-type support vehicles. That is the first to go. So we will be maintaining those for longer periods of time.

There is danger in the amphibious tractor area. That tractor, when we hope to replace it, will be 32 years old, which is four times the time of the average American keeping his car, which is about eight years. So there are dangers.

If we keep cutting the procurement budget, modernization will dry up and as the things get older, you remember in the late sixties, early seventies, the equipment we were operating was older than the Marines that were operating it and the repair bills and the downtime and the readiness begins to suffer.

We have a lot in the bins based on what we have bought over the last seven or eight years and we can probably live for a year or two, but about twenty-four months after you cut into spares and maintenance, you begin to see readiness decline. It is predictable and it will happen.

ADVANCED AMPHIBIOUS ASSAULT VEHICLE

Mr. **MILLER**. When you speak of 32 years old, you are speaking of a current amphibious vehicle?

General **FRANKLIN**. Yes, sir.

Mr. **MILLER**. I understand there is a high-speed water jet under consideration. Is that where we stand at this point?

General **FRANKLIN**. That is one of the candidates for what we call the Advanced Amphibious Assault, AAA program. We will have a prototype of that vehicle in the water this summer.

Mr. **MILLER**. But, because of the cut in funding you won't be able to enter into contract for that vehicle to go into production?

General **FRANKLIN**. We are fighting those battles as we speak to maintain the dollars in that line. It is a big line and when you see the POM come over, the whole five years, you will see in the Marine Corps R&D line a big line that says AAA and it becomes very vulnerable. So we have to fight those battles through the other side of the river before you will get a look at what the numbers are.

SUPPORT VEHICLES

Mr. **MILLER**. Speaking of support vehicles, haven't we virtually replaced all of our tactical vehicle fleet over the last eight years?

General **FRANKLIN**. That is correct.

Mr. **MILLER**. What happens to those old units? Somehow do they wind up in a position where they can be reused? Can they be stored?

General **FRANKLIN**. No, sir. In most cases, the old six-by of World War II and Korea and Vietnam vintage, that truck was over twenty years old when we started acquiring the new vehicles. They were scrap and most of them were, in fact, put into the salvage yards and scrapped. They were ten years beyond their economical life and not worth repairing or keeping.

When we bought the truck fleet, we bought PWR, prepositioned war reserves, so we have modern trucks now that are sitting at Albany and Barstow all preserved and well taken care of and as we lose trucks in conflict, we will pull those out of PWR, but they are new, zero-mileage trucks that are being well maintained by the supply depots.

Mr. **MILLER**. How about aircraft? They are taken to a dry area and kept in reserve?

General **FRANKLIN**. They take those to the old area outside of Tucson where there are thousands of aircraft sitting there, maybe in a dire emergency you could get those out of the desert. Very few of them ever come back out of the desert. We have brought some back. We brought out the first of the CH-46s and some of the Cobras, but nothing else that I know of has ever come back out of the desert.

Mr. **MILLER**. Thank you.

Mr. **MURTHA**. Mr. McDade.

STINGER MISSILE

Mr. **McDADE**. I want to chat with you a little bit about the Stinger Missile, General. There is a small R&D program to evaluate off-the-shelf night sights for the Stinger missile. Tell us why is it that you see a requirement in the Marine Corps for them when apparently the Committee is advised the Army doesn't want them?

General **FRANKLIN**. We find it very curious. The Stinger night sight is actually a part of a dual system that is important. Right now, the Stinger gunner, when the sun goes down, is totally ineffective because unless he is really lucky to be able to put his field of view up and have an airplane fly into it, which is very doubtful, he might as well go home when the sun goes down.

With the LEWDD, the gap filler radar, which is an early warning radar that looks for leakers—when our air battle develops, you can see it begin to develop on your search radars. What we do with the LEWDD is when the Hawks lose him, they get low and they say, "We think there are leakers coming from the West and they will be there in eight minutes."

The LEWDD comes up on the air and says, "Yea, verify there are leakers coming. They are at 274 degrees. They will be here in three minutes."

Now, with a night sight, the Stinger gunner knows where to look and he opens up his night sight and he has a very high probability of being able to pick that guy up and get a tone and fire. Right now, he is absolutely in the blind.

Mr. **McDade**. Why wouldn't the Army want to do it as well? I happen to personally think you are right.

General **Franklin**. I really don't know why they don't. It might be affordability is the only thing I can think of.

Mr. **McDade**. Does the Army have—what did you call that radar system——

General **Franklin**. The LEWDD.

Mr. **McDade**. Does the Army have those?

General **Franklin**. No, sir.

Mr. **McDade**. Maybe that is the reason they are not interested in developing it.

General **Franklin**. I think they place more emphasis on their other systems, gun systems, Chaparrals, and Patriots.

Mr. **McDade**. So they have a different operational concept?

General **Franklin**. Yes, sir. Until we get LAV air defense, we don't have an air defense gun system in the Marine Corps. We are strictly limited to Stinger and Hawk, so to us Stinger is an important link. In fact, we have gone to Stinger battalions now. We have beefed up Stinger.

So I think it is a mater of relative merit to us. The Stinger in the Army is kind of a tertiary weapon compared to their tracked vehicle and other weapons whereas to us it is lifeblood.

Mr. **McDade**. Thank you, General.

Thank you, Mr. Chairman.

Mr. **Murtha**. Mr. Miller.

Mr. **Miller**. No questions.

Mr. **Murtha**. We have other questions for the record.

Thank you very much, General.

The committee will adjourn until 1:30 p.m. this afternoon.

[Clerk's note.—Questions submitted for the record, and the answers thereto follow:]

Bush Budget Adjustment

Question. We understand that the Navy's share of the Bush budget changes were reductions of $2.3 billion for fiscal year 1990 and $3.5 billion for fiscal year 1991. How much of this was allocated to the Marine Corps?

Answer. The Department of Defense and Department of the Navy have not yet determined the final distribution of the Bush budget adjustments. When these adjustments are finalized, this information will be provided.

Question. What reductions are being made to Procurement, Marine Corps and the Marine Corps portion of the Navy R&D budget? Which specific programs are affected?

Answer. The Department of Defense and Department of the Navy have not yet determined the final distribution of the Bush budget adjustments. When these adjustments are finalized, this information will be provided.

Question. What programs are being terminated as part of the Bush budget revisions?

Answer. The Department of Defense and Department of the Navy have not yet determined the final distribution of the Bush budget adjustments. When these adjustments are finalized, this information will be provided.

[CLERK'S NOTE.—The Marine Corps subsequently submitted the following information:]

Answer. The following changes to FY 1990/91 were incorporated as part of the revised FY 1990/91 President's Budget submission:

[Dollars in millions]

	Fiscal year—	
	1990	1991
Automatic data processing:		
President's budget	23,286	16,950
Reduction	−5,800	−4,300
Revised president's budget	17,486	12,650
Position location:		
Reporting system:		
President's budget	59,815	26,773
Reduction	−5,000	−13,000
Revised president's budget	54,815	13,773

R&D REORGANIZATION

Question. The Marine Corps budget justification states that in fiscal year 1988 all Marine Corps research, development and acquisition activities were reorganized under one command.

General Franklin, please explain the reorganization?

Answer. The Marine Corps Research, Development, and Acquisition Command (MCRDAC) was established by the Commandant of the Marine Corps in November 1987. MCRDAC brought together previously disparate Research and Development activities with those of Acquisition all under one organization. These activities were from various Headquarters staffs and the Development Center at Quantico.

Question. What benefits do you expect?

Answer. The benefits from the reorganization are focused accountability and responsibility, consolidation of resources, and a streamlined process, all of which contribute to rapid fielding of equipment and responsiveness to the user.

Question. What have been the results to date?

Answer. At the present time, we have a matrix program management organization. The Program Manager is able to do his job with minimal internal Marine Corps interference and freedom to do his job. The user also has only one person, the Program Manager, to deal with, whereas in the past as many as seven were involved, each representing an independent activity or staff. We are very satisfied with the results to date.

Question. Do you have concepts that could apply to the acquisition organizations of the other services?

Answer. Our organization fits the Marine Corps. While we cannot speak for other services, any time you reduce the number of players and levels of bureaucracy, it has to result in a benefit. Studies, like the Packard and Grace Commissions, as well as recent legislation, have all promoted this idea.

R&D BUDGET

Question. The Marine Corps R&D programs are funded in the Navy, RDT&E appropriation. Yet the Marine Corps procurement is in its own separate appropriation.

General Franklin, why do you treat your RDT&E and procurement accounts in different ways?

Answer. The RDT&E and procurement accounts are treated differently primarily for historical reasons. The Marine Corps RDT&E allocations represented only 2% to 3% of the Navy appropriation. The procurement appropriation has always required separate Marine Corps identity because of its great impact on weapons systems acquisition. However, now that the Marine Corps RDT&E is embarking upon a major system development for the Over the Horizon concept, we believe that a separate Marine Corps RDT&E appropriation would be appropriate.

Question. Would you see any advantage in having Marine Corps RDT&E funding in its own appropriation? What would be the administrative benefits? Would this increase your paperwork?

Answer. Yes. A separate Marine Corps RDT&E appropriation will provide a clearer linkage with the Procurement, Marine Corps appropriation. This would also simplify the administrative portion of the planning and programming phases of systems acquisition and require little foreseeable paperwork increase. It would require some transitional methods of budget review within the Department of the Navy and Department of Defense, but these methodologies can easily be established.

Question. How would such a concept fit into your new organizational structure?

Answer. The Marine Corps RDT&E appropriation will merge perfectly with the Marine Corps Research, Development, and Acquisition Command. It will allow program managers "cradle to grave" oversight of their items of acquisition responsibility while allowing the Navy Secretariat continued oversight over these efforts.

ANTI-TANK WEAPONS

Question. The Army recently selected the "fire and forget" technology for its man portable anti-tank weapon system called AAWS-M (Advanced Antitank Weapon System—Medium).

What is your acquisition strategy for AAWS-M?

Answer. The present FY 1988 joint Army-Marine Corps Full Scale Development and Low Rate Initial Production Contract called for the Marine Corps to begin its initial buy of 240 rounds and 10 Command Launch Units (CLU) in FY 1993 for delivery in FY 1994. The Marine Corps is committed to providing our Marines with the AAWS-M as early as the contract will allow.

Question. The Committee in the past has been skeptical of the Marine Corps Dragon III missile improvement program, preferring instead that the Marine Corps just buy the Army's system and thereby lower everyone's unit cost. What are your plans now for Dragon III?

Answer. The Dragon III program was terminated on 8 March 1989.

Question. What is the status of Dragon III funds? How much is unobligated in fiscal years 1988 and 1989? How much is needed in fiscal year 1990 and for what purposes?

Answer. As of March 1989, $17.601 million of FY 1988 and $5.917 million of FY 1989 funds have been obligated. No funds in FY 1988 are unobligated and $362 thousand Marine Corps and $5.365 million of Army FY 1989 funds remain unobligated. Approximately $6.3 million of additional funds are required to complete the termination of the Dragon III contract.

AMMUNITION

Question. Last year Congress provided an unallocated increase of $34,788,000 for ammunition. How did the Marine Corps go about allocating this increase and what criteria were used in this allocation.

Answer. The criteria for allocating the increase included producibility, percentage of acquisition objective attained, urgency of need, training requirements support, and maintenance of sustainability. Allocation of the increase is as follows:

Item:	*Millions*
Ctg 7.62mm linked	$2,000
Ctg cal. .50 linked	5,000
Ctg 40mm white star parachute	1,500
Ctg 40mm HE DP M430	7,000
Proj 155mm HE DP ICM M483	2,000
Chg prop 155mm red bag	5,000
Chg prop 155mm white bag	7,788
Grenade smoke IR screen	2,500
Fuze practice f/hand grenade	1,000
Signal smoke illum marine	1,000
Total	34,788

TANK PROCUREMENT

Question. Last year, you anticipated a total program of 380 tanks. With the 255 tanks funded in fiscal year 1991, your total program is now 476 tanks. What accounts for this increase, especially in an environment of severely constrained budgets?

Answer. Previous funding constraints precluded the Marine Corps from procuring its full acquisition objective for the M1A1 tank. However, during the recent budget review process, the Secretary of Defense recognized the sustainability problems inherent in the previously budgeted quantity and applied additional resources to the Marine Corps for the acquisition of 476 tanks. This quantity will provide a viable tank force for the projected combat role of the Marine Corps.

Question. Last year you testified that you would modify your M88A1 tank recovery vehicles to make them like the new M88A2 vehicles which the Army was proposing to procure. This would make them capable of recovering the heavier M1A1 tank. As you may know, the Army is having second thoughts about the whole M88A2 program and may cancel it. What would you propose to do in such an event and what are your thoughts on the need for and use of tank recovery vehicles?

Answer. Recent discussions with the Army indicated that the requirement for an improved tank recovery vehicle remains valid. They further indicate that the M88A2 provides a successful solution to the problem. In the event of cancellation of this program, the Marine Corps will explore the M88A1 conversion program or participate in any subsequent Army refinancing of the requirement.

Question. Provide for the record the current profile for the M1A1 tank procurement program to include spares and ammunition.

Answer.

[Dollars in millions]

Item	Fiscal year—			
	1988	1989	1990	1991
Quantity:		66	155	255
M1A1 tank	1.1	140.6	396.3	653.4
Adv. proc	24.4	15.9	120.3	
M240 mach	4.7			
Subtotal	30.2	156.5	516.6	653.4
Spares		4.0	10.0	12.0
Ammunition		13.8	39.0	61.4
Total	30.2	174.3	565.6	726.8

ADVANCED AMPHIBIOUS ASSAULT VEHICLE

Question. The budget requests a small amount ($2.7 million) to begin development of a new assault vehicle for the Marine Corps. R&D is estimated at $.7 billion and procurement at $3.5 billion. Please explain the requirement for a new assault vehicle. On what analytical basis did you conclude that you need a new vehicle? What performance characteristics are envisioned, and how do they compare to today's inventory?

Answer. We seek a replacement system for our current amphibious vehicle based on a variety of analytical tools and our assessment of lessons learned from recent military operations. A Mission Area Analysis (MAA) of the ship-to-shore movement was completed in December 1987 which engaged Marine forces against the future projected threat. The MAA documented serious deficiencies in the AAV7A1 (current vehicle) that centered around inadequate system firepower, insufficient armor protection, and critically slow land and water speed.

Lessons learned from recent military operations in the Falklands and Persian Gulf reinforce the requirement to conduct amphibious operations from Over-the-Horizon (OTH). However our current amphibious vehicle, with its slow 6–8 knots water speed, prevents realization of this modern tactic. Additional analytical work conducted by the Center for Naval Analyses (CNA) also confirmed the problems with our current system in conducting OTH operations.

A number of performance characteristics are necessary beyond our current vehicle. The proposed system must be able to keep pace with the M1A1 in cross country operations. The current vehicle (at 25 mph cross country speed) finds itself immediately separated from the 30 mph cross country M1A1 capability. The replacement vehicle requirement is for a 30 mph minimum. The armor protection provided by the integral hull must also be improved. Our requirement is protection from 14.5mm projectiles. With heavy applique armor kits the current system improves to 12.7mm ballistic protection; however, future lightweight appliques applied to a 14.5mm ballistic protection hull base would provide far greater expandability and protection for a much longer time. Current safe sea launch distance for the AAV7A1 is 4,000 yards. Our requirement is 25 miles. To achieve this, the current water speed of less than 8 mph must be increased to 25–29 mph (20–25 knots). The current weapon system composed of a grenade launcher and .50 caliber machine gun cannot defeat the projected comparable enemy vehicle at the turn of the century. Therefore a cannon of 25 mm or greater is required. Some requirements will stay the same, such as the capability to negotiate 8–10 foot plunging surf, and safe vehicle operations in sea state 3.

Question. Given the budget constraints, is your plan affordable and realistic?

Answer. We strongly believe it is affordable, as we have been planning for this eventuality. We have structured our other major weapon system developments and acquisitions so that they do not conflict with the planned development and acquisition cycles for this system. It is the only major ground weapon system we are planning in the decade of the 1990's. Our fiscal strategies reflect this fact. We completed a Service Life Extension Program (SLEP) in 1986 to carry the current vehicle to the mid-90's, and have instituted other system extending programs to keep it operational until 2004. This allowed for other necessary weapon procurements to take place while keeping the current amphibious vehicle just above the marginal operational level. Investing in the current system to improve it further provides us little capability beyond the turn of the century. Any further life extensions beyond its projected 34 years service would be a poor return on investment and would still find the system deficient. This is due to the limitations of the hull design and material composition. The realism associated with the requested funds is tied to risk, the risk involved in both development and the long term cost of ownership. The technological risks (and corresponding fiscal risks) have been greatly reduced by the mature technology base we have systematically developed in the last 6–8 years. Significant achievements in high speed water jets, new types of track, suspensions, power plants, and ballistic hull materials which all use the most advanced state of current technology, have vastly diminished technological cost risks.

Question. What is your planned acquisition strategy?

Answer. Our acquisition strategy includes the normal phases associated with the development and procurement processes as they currently exist. A 15 month Concept Exploration/Definition (CE/D) phase is planned starting in FY 1990 for assessing a variety of system options. Based on cost and operational effectiveness analysis, the preferred system concept will be presented to the Defense Acquisition Board (DAB) for approval in FY 1991. Based on that Milestone I decision, a three year (FY 1991–1993) Concept Demonstration/Validation (CD/V) phase would be undertaken by competitively awarding several CD/V design contracts. These contracts will result in the construction of full-up prototypes that will be competitively tested near the end of the phase. After a Milestone II decision (1st quarter FY 1994) we plan to enter a four year (FY 1994–1998) Full Scale Development (FSD) phase with one of the designs developed in CD/V. During FSD will will construct 15 prototypes for testing purposes for two years. Our commitment to thorough testing is reflected by the length of time allocated for it. We have not settled upon the strategy for the procurement phase; however, we are not considering any option which does not include competition. Initial Operational Capability (IOC) is scheduled for FY 1999, with Full Operational Capability (FOC) scheduled for FY 2003/2004.

Question. Explain how rotary engine technology is involved in this vehicle?

Answer. The John Deere rotary engine is one of several engine candidates that design contractors may select when they propose their system concept. We are not designing the vehicle ourselves. We are stating our needs in performance terms. The competing contractors will have the freedom to make engine and other subsystem trade-offs that complement their design. We are initially restricting the design effort only in the area of cost and the requirement to design a system with maximum practical commonality with other U.S. and Allied combat systems. With successful current development and testing of the rotary engine, we believe it will be a strong candidate for the power plant.

Question. Why are you proposing to spend $11.1 million in fiscal year 1990 and $9.7 million in fiscal year 1991 for R&D on the current amphibious assault vehicle with has been in the Marine Corps inventory for decades and just went through a major SLEP? What specifically will be undertaken with these funds and what is the out-year funding profile?

Answer. The R&D funds associated with the current amphibious vehicle (AAV7A1) in FY 1990 and FY 1991 pay for numerous small activities associated with its support. This supports the Amphibious Vehicle Test Branch for the testing of mine clearance kits and minor engineering changes proposed for the current vehicle. It also supports the Program Managers Vehicle Design Contractor which develops minor engineering change improvements that are requested from our field units and are tested prior to application. Finally, it sustains the David Taylor Research Center which manages data base model test information for water and land borne equipment change effects, and is investigating low risk, high payoff, near term survivability and mobility enhancements. These R&D activities comprise necessary vehicle support functions that insure survivability. They are not associated with service life extension programs for reliability, availability and maintainability. The RDT&E funding profile for the current amphibious assault vehicle (AAV7A1) is as follows: FY 1990, $11.1 million; FY 1991, $9.7 million; FY 1992, $9.2 million; FY 1993, $8.4 million; and FY 1994, $5.8 million.

HAWK MISSILE

Question. In fiscal year 1988, the Committee approved multiyear procurement for the Marine Corps HAWK Missile, but made approval conditional on certification from the Secretary of Defense that multiyear procurement was the most cost-effective approach. Last August, the required certification was received. This certification was accompanied by strong statements from the Marine Corps that HAWK missile procurement was important. Why have the Marines now abandoned HAWK procurement?

Answer. The Marine Corps still considers the procurement of HAWK missiles to be of great importance and we did not abandon the HAWK procurement. Based on the overall threat assessment, it was determined by the Office of the Secretary of Defense (OSD) that the U.S. Army had a greater need for the last two years of the four year multiyear HAWK procurement. OSD realigned the last two years of the multiyear funds from the Department of the Navy to the Department of the Army.

Question. What changes have taken place in the acquisition objective for the HAWK since last year, and why?

Answer. The HAWK AO has changed from 4,909 to 6,556, due to a reassessment of a new class of target (cruise missiles).

Question. What percentage of your acquisition objective will be achieved under the current plan and what would have been achieved if the Marines had received all of the missiles under the multiyear?

Answer. We achieve 59% of the AO with the FY 1989 procurement. If we were to receive all the missiles under the multiyear, we would have achieved 69% of the new AO.

Question. Did the Marines protest the decision to give the missiles to the Army? Are you satisfied with the decision?

Answer. Yes. We wanted to procure those missiles provided in the last two years of the multiyear buy. The Marine Corps would have preferred to keep the entire 4 years of funds, but based on the overall DOD assessment of the threats, we went along with the decision.

Question. The Marine Corps was funded for 525 missiles in fiscal year 1988 and 467 in fiscal year 1989. What is the contract status and delivery schedule for these missiles?

Answer. The FY 1988 contract was signed September 1988 and the FY 1989 contract was signed in December 1988. The first two years of the multiyear buy are proceeding on schedule, with the first deliveries starting in June 1990.

Question. The Marine Corps was funded for 525 missiles in fiscal year 1988 and 467 in fiscal year 1989. What is the contract status and delivery schedule for these missiles?

Answer. The FY 1988 contract was signed in September 1988 and the FY 1989 contract was signed in December 1988. The first two years of the multiyear buy are proceeding on schedule. The HAWK missile delivery schedule is as follows:

Fiscal year 1988—Deliveries		Fiscal year 1989—Deliveries	
Date	Quantity	Date	Quantity
June 1990	[1] 55	June 1991	50
July 1990	([2])	July 1991	([2])
August 1990	50	August 1991	50
September 1990	50	September 1991	50
October 1990	50	October 1991	40
November 1990	50	November 1991	40
December 1990	50	December 1991	40
January 1991	50	January 1992	40
February 1991	50	February 1992	40
March 1991	50	March 1992	40
April 1991	50	April 1992	40
May 1991	50	May 1992	37
Total	555	Total	467

[1] Includes 30 missiles from fiscal year 1987 buy.

[2] Plant closed.

Question. Last year, Congress appropriated $105,509,000 for HAWK procurement, but the current P–1 shows only $97,990,000 on this line. What happened to the $7,519,000 and what is the impact of this reduction?

Answer. The original number was an estimate and when the multiyear was finalized, the required amount was decreased by $7,519,000. These funds were realigned primarily to the Tactical Air Operations Module.

LIGHT ARMORED VEHICLE—ASSAULT GUN

Question. The Marine Corps is requesting $19.5 million in fiscal year 1989 to continue development of an assault gun into the Light Assault Vehicle (LAV). Please explain the requirement.

Answer. The requirement for the LAV–AG was formally documented in the LAV Required Operational Capability document of 5 April 1985. Since the inception of the LAV program, our goal has been to provide the Light Armored Infantry Battalion (LAI Bn) a direct fire support weapon system. Presently, organic direct fire support is provided through the combined employment of the LAV25 (equipped with a M242 25mm Chain Gun) and the LAV AntiTank vehicle (equipped with the TOW antitank missiles) and the Shoulder-Launched Multipurpose Assault Weapon. These systems do not individually or collectively provide the LAV–AG capability and, therefore, do not satisfy the requirement.

Question. Given that the Marine Corps is buying the Army's M1 tank, why upgrade the gun on the LAV? What caliber gun is likely for the LAV? How does this compare to the M–1's gun?

Answer. The LAV–AG is not an upgrade to any weapon system but an additive system which will allow the LAI Bn to accomplish its mission. Its primary operational role is to enhance the LAI Bn's ability to conduct reconnaissance, security, and economy of force operations. Additionally, it will enhance the LAV–25 firepower by providing heavier caliber suppressive fires, bunker busting/obstacle destruction, disengagement covering fire, and destruction of other light armored vehicles. In the end, the LAV–AG does not have the same mission as the tank.

The Marine Corps is exploring the feasibility of various gun systems to provide the optimal firepower compatible with our mobility requirements. As part of the process for selecting a gun, the CG, MCRDAC is conducting a Market Survey to determine the feasibility of a 105mm gun system solution.

The evaluation of all alternatives focusing on developmental costs, lethality, ammunition considerations, support costs, technical risk, and U.S. Army interest will be finalized at a Marine Corps Program Decision Meeting in the near future.

The LAV-AG will mount a medium caliber gun. The M-1A1 tank mounts a 120mm gun system which is considerably more lethal than any gun chosen for this system.

Question. What weapon is replaced if the Marines are allowed to arm LAVs with assault guns?

Answer. LAV-AG is an additive system to the LAV family of vehicles. Therefore, it will not replace any existing weapon system.

PROCUREMENT FOR THE MARINE CORPS RESERVE

Question. According to the P-1R, the fiscal year 1990 budget includes $28.1 million for the procurement of equipment for the Marine Corps Reserve. This represents only 2.3 percent of your procurement budget. Why does the procurement for the reserve component have such a low priority?

Answer. Acquisition of equipment in support of the Reserve Component is, and will continue to be, a high priority in our procurement strategy. All Marine Corps acquisitions are programmed and procured as a single process, with concurrent fielding to the Active and Reserve forces simultaneously. The Reserve percentage of the procurement budget largely reflects both the reality of fiscal constraints as well as the fulfillment of many needed requirements over the past five years.

Question. The Marine Corps Reserve is being changed to become a heavier force, leaving the active component as a lighter and more deployable element. Where is the Marine Corps Reserve getting the equipment necessary to carry out these new responsibilities?

Answer. The transfer of specific missions from the Active component to the Reserve component is a transition which is programmed over the next 4 years. Equipment from those Active units making the transition will be shipped to specific Reserve units taking on these added missions.

Question. Last year, Congress appropriated $10 million in an unallocated line for procurement of miscellaneous equipment for the Marine Corps Reserve. How do you propose to use this money and what criteria were used in its allocation?

Answer. Congressional funding of $10 million provided for FY89 will be used to procure the below listed equipment. Allocations are based on priorities and needs established by the Commanding Generals of the 4th Marine Division/4th Force Service Support Group and 4th Marine Aircraft Wing which command our Reserve Forces under the direction of the Commandant of the Marine Corps.

ALLOCATION OF FISCAL YEAR 1989 CONGRESSIONAL ADD-ON

[Dollars in millions]

Item	Cost	Quantity
Lightweight decon. apparatus	.7	50
Short term anti-jam controllers	2.1	299
AN/TPS-32 solid state drivers	.5	2
Digital comm. terminal	2.4	171
Marine corps tank full-crew simulation trainer—(MCTFIST)	1.5	6
Tractors	2.4	29
MCTFIST video tropical/cold weather scenario	4	2
Total	10.0	

STINGER NIGHT SIGHTS

Question. The Marine Corps is pursuing a small R&D program to evaluate off-the-shelf night sights for the Stinger missile. What is the operational concept: who cues the gunner to look through his narrow field of view night sight to fire the missile? How effective will this be?

Answer. The operational concept of cuing the Stinger gunner teams is not different from current doctrine, i.e. Light Anti-Air Defense (LAAD) units will be assigned sectors of responsibility within the operating area. The passing of target information to LAAD gunners will be coordinated by the senior LAAD command element. This information will be passed via radio/voice communications and/or the Digital Communications Terminal from alerting information provided by the Lightweight Early Warning Detection Device (LEWDD) and data from other Marine Air Command and Control System agencies. The effectiveness of cuing data has been shown to significantly increase the engagement capability by acquiring targets at ranges which are considerably in excess of lethality envelopes. The Stinger then becomes a preventive weapon vice a reactive weapon.

Question. Although it would be more expensive, why would you not use a vehicle mounted system like the Army does (its Pedestal Mounted Stinger)?

Answer. The Marine Corps has a requirement for this type of system and is currently evaluating several programs such as the LAV, Air Defense Vehicle, and the Pedestal Mounted Stinger, that will increase our LAAD unit firepower and mobility during amphibious/conventional operations A final decision concerning this system will be made in the near future.

OBLIGATION RATES

Question. Last year the Committee made numerous reductions in communications equipment and support equipment lines as a result of very slow obligation rates for prior year programs. What changes, if any, have been made in your contracting or other procedures to improve this situation this year.

Answer. First, it shouuld be noted that overall obligation rates for the PMC appropriations are higher this fiscal year than they were during the last fiscal year at this timeframe as shown below:

Item	Percent—	
	Last year	This year
First year of appropriation	41	62
Second year of appropriation	90	91
Third year of appropriation	96	98

With regard to changes we have made, I have given my personal attention to this issue and have directed that the Marine Corps meet and sustain acceptable obligation rates on a continuing basis. I have required program managers to brief me at least quarterly on programs which show signs of slippage. Additionally, I have established a Spares Working Group to actively monitor spares management including timely obligation performance.

As you know, the Marine Corps is heavily dependent on the other military services for contracting services. In this regard, the Marine Corps has made greater use of advance funding documents than ever before. In this process, we issue advance funding documents to a procuring activity prior to availability of funding, usually prior to passage of the appropriation. The procuring activity then initiates the contracting process up to the point of contract award. When funds are appropriated, the procuring activity can immediately finalize the contract. Although the extent of pre-contract preparation is discretionary on the part of the procuring activity, the Marine Corps has found that many procuring activities do, in fact, process the requirement up to the point of contract award on the basis of an advance document.

We have also applied this procedure to ourselves wherever possible. One such area is in spares management under a process called "initiations". We complete all the administrative paperwork prior to the beginning of the fiscal year and obligate our spares funds immediately upon receipt of fund appropriation.

Finally, the Marine Corps uses contract options wherever, possible. This process allows for very rapid obligation of subsequent year's funds.

ARMORED BULLDOZER

Question. Last year we were told that the Marine Corps would conduct a "dig off" between the Army's M-9 Armored Combat Earthmover (M9 ACE) and the British Combat Engineer Tractor (CET). The competition was to take place this summer, with initial procurement funding slated for fiscal year 1993. What is the status of this program?

Answer. The "dig off" was terminated for the following reasons:

With the success of the ACE Initial Production Testing, and the projected significantly lower unit cost, the "dig off" is no longer required;

The Army developed and owns the technical data package for the high speed, fully armored, one man operated, full-tracked, dozer bladed, M9 ACE;

An Army five year production contract with BMY was signed in August 1986 for 566 vehicles;

The two men required to operate the CET would have an adverse impact on force structure ceiling and manpower constraints; and

When Integrated Logistic Support (ILS) factors are weighted into the acquisition equation, the "offshore" produced CET cannot overcome the numerous ILS requirements and the resulting higher life cycle cost.

The Marine Corps will partcipate in the Army's program at the earliest opportunity.

Question. How much is included in the current five year budget for procurement of armored bulldozers?

Answer. The current profile for armored bulldozers is as follows:

[Dollars in millions]

	Fiscal year—	
	1993	1994
Amount	21.4	44.3
Quantity	38	87

LIGHTWEIGHT EARLY WARNING DETECTION DEVICE (LEWDD)

Question. Last year, Congress funded initial procurement of an unbudgeted item called the Lightweight Early Warning Detection Device (LEWDD). Since this program was not discussed in last years hearings, describe it to us now.

Answer. The LEWDD is a lightweight active sensor capable of detecting fixed and rotary-wing aircraft out to 20 kilometers. The information from the LEWDD will enable Light Anti-Air Defense (LAAD) gunners to receive timely alerting and cuing of hostile aircraft during both day and night operations and under all weather/visibility conditions. The system has four components; transceiver, display panel, pedestal and antenna. The U.S. has production rights for this system; however, it is an Israeli design.

Question. The FY 1990 budget funds procurement of an additional 10 LEWDDs for $2.4 million. The current profile shows a total of 95 systems procured for a total of $26.9 million. Will this satisfy the total Marine Corps requirement?

Answer. The acquisition objective for the LEWDD program is 101 sensors. Current funding will procure 95 sensors. However, it is expected that a beneficial revision to the contract will allow procurement of another 6 sensors. This will meet our AO.

Question. LEWDD is used with Stinger crews to alert and cue their teams. What equipment currently serves this function?

Answer. Currently the LAAD teams rely on the Marine Air Control Squadron (MACS) and the Light Anti-Aircraft Missile (LAAM) Bn to provide early warning of hostile aircraft. The MACS radars are used for long range surveillance and have limitations for low-flying aircraft which are masked by the terrain. The LAAM Bn radars are effective, however, they are limited in their employment.

Question. Other services, particularly the Army, also used Stingers. Are they also procuring LEWDD? If not, what equipment serves this function?

Answer. At this time the Army has not officially indicated an interest in procuring the LEWDD.

The Air Defense Fire Coordination Officer (ADFCO) is responsible for passing early warning and applicable Air Defense information to the Air Defense Artillery (ADA) elements within the division. He will locate himself nearest the ADA command post having communications link with an Air Force control and reporting center and reporting post.

Question. What is the procurement strategy for LEWDD?

Answer. The procurement strategy follows. The LEWDD is a non-developmental item. The Request for Procurement for this program was released 1 April 88 and closed out on 2 August 1988. One competitor, Lear-Astronics, was able to respond to the requirements of the RFP. The technical evaluation (TECHEVAL) began in August 1988 and will be completed in April 1989. The operational evaluation (OPEVAL) was completed in January 1989. The MCPDM III (approval for service use) is scheduled to take place after TECHEVAL is completed. Contract award will take place in June 89 and the first sensor will be delivered to the Fleet Marine Forces July 1990. Full operational capability is scheduled for late FY93.

Question. Why is $2.2 million included in FY 1989 for facilitization costs when DOD policy is to require self-facilitization?

Answer. Since the Marine Corps is only purchasing 101 sensors, the burden of tooling and start-up costs is placed on DOD. The potential for continued sales after the Marine Corps purchase is limited unless the Army participates in the future. During contract negotiations we will attempt to reduce these costs.

Question. Approval for service use was scheduled for February 1989. Was it achieved? If not, why not?

Answer. The MCPDM III has been changed to late April 1989. We are waiting until the TECHEVAL is completed.

Question. What are the current testing and contracting milestones and what is the delivery schedule?

Answer. The testing and contracting milestones and the delivery schedule is as follows:

DELIVERY SCHEDULE

TECHEVAL Complete, April 1989.
MCPDM III, April 1989.
Contract negotiations, May 1989.
Contract award, June 1989.
First delivery, July 1990-December 1990.
Dec FY 1990 2d Contract,
Delivery 2d contract, January 1991-May 1991.
Oct FY 1991 3d contract,
Delivery 3d contract, June 1991-February 1992.
Oct FY 1992 4th contract,
Delivery 4th contract, March 1992-October 1992.

AN/MRC-139 RADIO

Question. The budget includes $9.7 million for initial procurement of the AN/MRC-139 radio. The Marine Corps is the only serivce to buy this radio. Explain the function of this radio and why the Marine Corps is the only service who needs it?

Answer. The other services do not have a multichannel radio system that will meet the Marine Corps requirement. The AN/MRC-139 is designed to be interoperable with the Unit Level Circuit Switch (ULCS). The Army equivalent to the AN/MRC-139 is the Mobile Subscriber Equipment (MSE) system. The Mobile Subscriber Equipment (MSE) system is much too big and heavy for Marine Crops applications and requires an extensive number of communications nodes to maximize system performance. The AN/MRC-139 has unique features of being immersion-proof for amphibious operations, being operable on internal vehicle power and not being dependent on the deployment of a nodal communications network to achieve optimal performance.

Question. Is there a validated requirement document for this radio? If so, when was it approved?

Answer. Yes. The requirement for this system was validated by a Required Operational Capability (ROC) of 2 February 1976, and subsequently undated and revalidated on 12 September 1988.

Question. This radio replaces the AN/MRC-135 radio. How many of these are in the inventory and when were they fielded?

Answer. There are approximately 660 AN/MRC-135's in the inventory. The AN/MRC-135 was fielded in the late 1960's.

Question. That is the procurement strategy for the AN/MRC-139?

Answer. The procurement strategy calls for a streamlined, two phase acquisition in which two competitors produce prototypes utilizing non-developmental item hardware. Contracts were awarded to Canadian Marconi Company, Montreal, Canada, and Loral Terracom, San Diego, Ca on 30 October 1987. The two contract phases encompass the R&D effort, in which government financial liability is limited to $1 million per contractor, and the production options that have been negotiated at non-to-exceed prices. The prototypes will undergo Operational Testing from April-July 1989, at Camp Pendleton, Ca. The operational testing will be used to qualify each system. With both contractors qualifying, the lowest price bide will be the final determining factor for award of the production options to a single contractor.

Question. What are the milestones for this program?

Answer.

MILESTONE—DATE ACHIEVED/SCHEDULED

FSED contract award, 30 October 1987.
EDM production, 30 October 1987—31 March 1989.
Preliminary design review, February 1988.
Critical design review, July 1988.
Developmental test II, October 1988—March 1989.
Operational test II, 3 April 1989—15 July 1989.
MCPDM III (approved for service use), November 1989.
Production options award, February 1990.

System production, February 1990—September 1994.

Milestone—Date achieved/scheduled

Initial operational capability, 1st quarter fiscal year 1993.

Full operational capability, 1st quarter fiscal year 1995.

Question. For the record, provide a complete procurement profile.

Answer.

PROCUREMENT PROFILE

[Dollars in millions]

ITEM	FY1988	FY1989	FY1990	FY1991	FY1992	FY1993	FY1994
Dollars	0	0	9.7	20.2	28.4	20.9	0
Quantity			27	114	192	135	

[CLERK'S NOTE.—End of questions submitted for the record.]

WITNESSES

Page
Bracken, Maj. Gen. E.R 435
Burcz, Mel 285
Calabrese, A.J 189
Chen, Brig. Gen. W.S 137, 285
Fisette, Michael 189
Franklin, Maj. Gen. R. "M" 517
Greenberg, Maj. Gen. P.L 189
Nydam, Brig. Gen. D.A 1
Owen, M.W 1
Parker, Michael 1
Pfitzenmaier, Capt. L.D 1
Reese, Maj. Gen. T.D 95
Rigby, Maj. Gen. J.W 285
Rumpf, R.L 517
Welch, J.J., Jr 381, 435
Welch, T.J 1
Yates, Lt. Gen. R.W 381, 435

INDEX

AIRCRAFT PROCUREMENT, AIR FORCE

Page
AC-130U Gunship, 417
Acquisition Strategy Panels, 426
Advanced Radar Warning Receiver, 420
Aerospace Plan, Air Force, 414
Airborne Self-Protection Jammer (ASPJ), 412
Air Force One, 428
B-1 Cost Cap, 402
C-17 Aircraft, 389
  Costs, 394
  Development Contract Status, 396
  Production Rate, 415
  Weight Problems, 392
C-27A STOL Aircraft, 408, 419
Electronic Countermeasures Pod, 426
F-15 Multi-Stage Improvement Program, 407, 433
F-16 Engines, Faulty, 429
Introduction, 381
Joint Tactical Information Distribution System (JTIDS), 407, 423
Low Altitude Navigation and Targeting Infrared System for Night (LANTIRN), 410
MC-130H Combat TALON II, 387, 416
Priorities, Air Force Aircraft, 396
Spare Parts, 405
  Adequacy of Levels, 399
Statement of Mr. Welch, 382
Summary Statement of Mr. Welch, 381
Tactical Aircraft Unit Costs, 430
Tanker Transport Training System (TTTS), 404
  T-37 and T-38 Aircraft, 404
  T-37 Structural Life Extension Program, 418

AIRCRAFT PROCUREMENT, ARMY

AH-64 Apache Program, 111, 127
  Fiscal Year 1989 Apache Procurement, 113
  Multi-Stage Improvement Program, 115
  Multiyear Contract, 111, 114
Army Aviation Modernization Plan, 117
Army Helicopter Improvement Program (AHIP), 119
CH-47D Helicopter, 107, 127
  Budget, 108
  Safety Problems, 107
Electromagnetic Interference Vulnerability (EMI), 115
Grisly Hunter, 123
Introduction, 95
Multiyear Procurement, 110, 118
OV-1D Surveillance Aircraft, 128
Special Operations Forces Aircraft, 108, 124
  Program Cost Reduction, 109

Special Operations Forces Aircraft—Continued — Page
    Prototype Deliveries 110
    Total Program 108
Statement of Major General Reese 97
Summary Statement of General Reese 95
UH-1 Modifications 133
UH-60 Black Hawk Helicopter 131

CHEMICAL WEAPONS AND DEMILITARIZATION

Bigeye Chemical Bomb 25, 35, 86
Binary Systems, New 27, 63
Biological Warfare 25, 64
Chemical Defense, Funding for 23
Cryofracture Approach to Chemical Weapon Disposal 60, 76
Disposal, Chemical Weapons 64
    Cost 64
    Emergency Response Program 78
    National Research Council Review 79
Disposal Facilities, Additional Chemical Weapon 82
Equipment, Chemical Warfare Defensive 90
Europe, Chemical Weapons in 53
GB-2 Binary Chemical Projectile 27
    Cannister Deliveries 32
    Contracts and Deliveries 28
    DC Production Facilities 27
Incinerators, Future Use of 60
Introduction 1
Johnston Island Chemical Weapon Disposal Plant 49, 66
    Certification Criteria 66
    Cost of JACADS, Total 51
    Cryofracture Approach to Chemical Weapons Disposal 60, 76
    Management of JACADS 52, 75
    Program Delays at JACADS 50
        Cost Impact of 51
    Risks 66
    Systemization of JACADS 49
    Technical and Schedule Risk 51
"Leakers", Chemical Weapon 34
Libyan Chemical Facility 33
Multiple Launch Rocket System (MLRS), Binary Chemical Warhead for 88
Paris Conference on Chemical Warfare 38
Production, Funding for Chemical Weapon 23
Production, Moratorium on Chemical Weapon 38
Statement of Mr. Owen 42
Statement of Dr. Welch 3
Stockpile, Chemical Weapon 22
Summary Statement of Mr. Owen 39
Summary Statement of Dr. Welch 1
    Third World Nations, Chemical Weapons in 2
    Weapons and Missiles, Proliferation of 2
Tooele Army Depot, Full-Scale Baseline (Disassembly) Facilities at 80
Umatilla Army Depot, Chemical Weapons at 55
    Base Closure, Relationship with 58
    Emergency Response at Umatilla 59

Umatilla Army Depot, Chemical Weapons at—Continued Page
  Incinerators, Destruction of 56

MARINE CORPS PROCUREMENT/RESEARCH AND DEVELOPMENT

Advanced Amphibious Assault Vehicle 558, 564
Advanced Anti-tank Weapon System-Medium (AAWS–M) 553, 562
Ammunition 549, 563
AN/MRC–139 Radio 574
Armored Bulldozer 571
Bush Budget Adjustment 560
Dragon Missile 549
Force Structure, Changing Marine Corps 552
  Equipment Requirement 552
HAWK Missile 567
Introduction 517
Light Armored Vehicle (LAV) Assault Gun 568
Lightweight Early Warning Detection Device (LEWDD) 572
Motion to Close 517
Obligation Rates 570
Procurement for the Marine Corps Reserve 569
Procurement Funding, Marine Corps 558
Research and Development Budget 562
Research and Development Reorganization 561
Statements of Major General Franklin 520, 544
Stinger Missile 559
  Night Sights 570
Summary Statement of General Franklin 518
Summary Statement of Mr. Rumpf 518
Support Vehicles 559
Tactical Air Operations Module (TAOM) 555
  Procurement Delays 557
  Protection for TAOM 556
Tank Procurement 551, 563
  M–88 Tank Recovery Vehicle 551
V–22 Osprey Aircraft 549

MISSILE AND OTHER PROCUREMENT, AIR FORCE

Advanced Medium Range Air-to-Air Missile (AMRAAM) Test Program 466, 469, 482
AGM–130 Program 488
Base Closures 468
C–17 Aircraft 457
Caribbean Basin Radar Network (CBRN) 509
Chemical Biological Defense Program 505
Combined Effects Munition 501
Defense Support Program (DSP) 513
Delta II Space Launch 495
Equipment Survivable Collective Protection System (SCPS) 479
GBU–15 Bomb Component Overpricing 501
HAVE NAP Missile 476, 487
Introduction 435
Joint Statement of Mr. Welch and Lt. General Yates 436
Low Priority Items 469
Magna, Utah Facility Fire 471

Page
Maverick Missile 484
Medical and Dental Equipment 512
MILSTAR Communications Satellite 515
Minuteman Missile 461
Mobile Armored Reconnaissance Vehicle/Stand-off Munition Disruptor (MARV/SMUD) 497
MX Peacekeeper Missile:
  MX Rail Garrison, Defense Science Board Recommendations 463
  Peacekeeper in Minuteman Silos 455, 481
  Q-10 Missiles 455
  Rail Garrison 458, 470, 478, 481
  Security on Rail System 464
Navstar Global Positioning System (GPS) 503
Other Procurement Budget Request, Fiscal Year 1990 468, 502
Over-the-Horizon Backscatter Radar (OTH-B) 506
Plant Visits 457
Range Improvements Equipment 511
Secure Telephone Unit (STU-III) 514
Seek Spinner 473
Small Intercontinental Ballistic Missile (ICBM) 465, 477
Space Programs, Industrial Base for 490
Spares and Repair Parts, Electronics and Telecommunications 510
Statement of Major General Bracken 440
Tacit Rainbow 473, 486
Tactical Air Launched Decoys 490
Titan IV Solid Rocket Motor 495
Total Quality Management 493

MISSILE AND OTHER PROCUREMENT, ARMY

Air Defense Anti-Tank System (ADATS) 358
Army Tactical Missile System (ATACMS) 330, 352
Bradley Fighting Vehicle/M113 Armored Personnel Carrier 335
Chaparral Missile 336, 349
Deployable Medical Systems 372
Desert Mobility Vehicle System (DMVS) 345
Fiber Optic Guided Missile (FOG-M) Program 328
Five Ton Trucks 333, 363
Gas Masks 369
Hawk Missiles 327
Heavy Expanded Mobility Tactical Truck (HEMTT) 366
Host Nation Support 375
Introduction 285
Laser Hellfire Program 355
Logistics Support Vessel 378
M915 Line Haul Tractor 345
Medical Support Equipment 374
Motorcycles 368
Multiple Launch Rocket System (MLRS) 350
Non-System Training Devices 377
Nuclear, Biological and Chemical Reconnaissance System (NBCRS) 371
Palletized Loading System (PLS) 340, 364
Patriot Missile 323, 346
Petroleum Equipment 376
Spares, Tactical and Support Vehicle 368

Page
Statement of Brigadier General Chen 316
Statement of Major General Rigby 297
Stinger Missile 324, 347
    Concurrency in Stinger RMP Program 325
    Pedestal Mounted Stinger 357
Summary Statement of General Chen 315
Summary Statement of General Rigby 285
    Conclusion 296
    Fiscal Year 1990–1991 Budget Request 288
    HEMTT Ten Ton Truck 290
    Modernization Plan 292
    Other Support Equipment 294
    Tactical and Support Vehicles 285
Tactical Wheeled Vehicle Modernization Plan 360
Ten Ton Trucks 344
TOW 2 Missile 338

PROCUREMENT OF AMMUNITION, ARMY

120mm Mortar Ammunition 222
Ammunition Production Base Policy 228, 243
    Maintaining the 228, 277
Artillery Ammunition 200
Artillery Time Fuze 211
    ET Fuze Deliveries/Testing 212
    ET Fuze Procurement Strategy 211
    ET versus MT Fuze Costs 213
    M577 Mechanical Time Fuze 216
    MT Fuze Procurement Strategy 215
AT–4 Antiarmor Rocket 225, 282
    Acquisition Objective 226
    Deliveries 225
    Training Consumption 227
Contracts, Use of Cost-Plus versus Fixed-Price Ammunition 223
HMX Manufacturing Facility 280
Introduction 189
Mississippi Army Ammunition Plant (MSAAP) 202, 239
Mortar Training Rounds 221
Norris Vernon Ammunition Plant 208
    Workload for Norris Vernon, Additional 210
    Workloading Contractor Owned Plants 208
Offshore Procurement of Ammunition 229
Plastic Training Ammunition 229
RDX Explosive Manufacturing Facility 277
Riverbank Army Ammunition Plant 241
Statement of Major General Greenberg 192
Stockpile, Ammunition 201
Summary Statement of General Greenberg 190
Tactical Explosives 284
Trends, Ammunition 196, 233
    Budget Request, Fiscal Year 1990 199
    Increases, Potential Ammunition 197
    M864 Projectiles 235
    Other Reductions 237
    Plant Closings and Reductions, Ammunition 198, 235

Trends, Ammunition—Continued Page
Workforce Reductions, Potential ... 198
XM913 105mm Artillery Ammunition ... 283
XM900E1 105mm Tank Ammunition ... 242

PROCUREMENT OF WEAPONS AND TRACKED COMBAT VEHICLES, ARMY

9mm Handguns ... 161
120mm Mortar ... 158, 176
Unobligated Balances ... 158
Bradley Fighting Vehicle (BFV) ... 151, 172
Modification ... 173
Multiyear Contract Savings ... 152, 154
TOW II Subsystem ... 154
Field Artillery Ammunition Trailer (ARTRAIL) ... 164
Improved Tank Recovery Vehicle ... 150, 157, 172
M88 Deficiencies ... 150
Introduction ... 137
M-1 Tank Program ... 143, 166
Block II Tank Program ... 168
Foreign Sales of the M1 Tank ... 171
M1A2 Tank ... 146
Modifications ... 178
Production Plan ... 166
Tank Plant Closing ... 144
Tank Procurement Strategy ... 145, 170
M109 Howitzer Improvement Program ... 185
M119 105mm Light Howitzer ... 159, 183
M16A2 Rifle Multiyear Contract ... 159
Pedestal Mounted Stinger ... 156
Small Arms Modernization Program ... 163
Statement of Brigadier General Chien ... 139
Stinger Missile ... 155
Summary Statement of General Chen ... 137
Vehicular Intercom System ... 147